SKYLINE
Engineering

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Job # 20-2005SWMP

STORM WATER MANAGEMENT PLAN

PREPARED FOR :

Country Gardens II

2800 Overland Trail @ South Mission Road
Fallbrook • California

November 16, 2006

The combination of the proposed construction and post construction BMPs will reduce, to the maximum extent practical, the expected pollutants and will not adversely impact the beneficial uses of water quality of the receiving waters.

PROJECT CASE NO : P04-058
LOG NO : 04-02-053

APN 123.010.52

County of San Diego
Storm Water Management Plan
For Priority Projects
(Major SWMP)

Project Name:	COUNTRY GARDENS 2
Permit Number (Land Development Projects):	P04-058 LOG #04-02-053
Work Authorization Number (CIP):	
Applicant:	KARL ZIMMER
Applicant's Address:	PO BOX 1219, RAMONA CA 92065
Plan Prepare By (*Leave blank if same as applicant*):	DAVID ZELNIK, PE
Date:	6/10/2006
Revision Date (If applicable):	N/A

The County of San Diego Watershed Protection, Storm Water Management, and Discharge Control Ordinance (WPO) (Ordinance No. 9424) requires all applications for a permit or approval associated with a Land Disturbance Activity must be accompanied by a Storm Water Management Plan (SWMP) (section 67.804.f). The purpose of the SWMP is to describe how the project will minimize the short and long-term impacts on receiving water quality. Projects that meet the criteria for a priority project are required to prepare a Major SWMP.

Since the SWMP is a living document, revisions may be necessary during various stages of approval by the County. Please provide the approval information requested below.

Project Stages	Does the SWMP need revisions?		If YES, Provide Revision Date
	YES	NO	
N/A			

Instructions for a Major SWMP can be downloaded at http://www.co.san-diego.ca.us/dpw/stormwater/susmp.html.

Completion of the following checklist and attachments will fulfill the requirements of a Major SWMP for the project listed above.

PROJECT DESCRIPTION

Please provide a brief description of the project in the following box. For example:
The 50-acre RC Ranch project is located on the south side of San Miguel Road in the County of San Diego (See Attachment 1). The project is approximately 1.0 mile east of the intersection of San Miguel Avenue and San Miguel

Road and 1 mile south of the Sweetwater Reservoir. This project will consist of a planned residential community comprising of 45 single-family homes 72 and multi-unit dwellings.

The 2 acre gross country gardens II project is located on the west side of South Mission Road in the County of San Diego, see the attachment 1. The project is about 1 mile south of Fallbrook high school. Which is by the intersection of South Stage Coach Lane & South Mission Road in the community of Fallbrook. The project will consist of a 49 bed assist living facility.

PRIORITY PROJECT DETERMINATION

Please check the box that best describes the project. Does the project meet one of the following criteria?

PRIORITY PROJECT	YES	NO
Redevelopment within the County Urban Area that creates or adds at least 5,000 net square feet of additional impervious surface area	X	
Residential development of more than 10 units	X	
Commercial developments with a land area for development of greater than 100,000 square feet	N/A	
Automotive repair shops	N/A	
Restaurants, where the land area for development is greater than 5.000 square feet	N/A	
Hillside development, in an area with known erosive soil conditions, where there will be grading on any natural slope that is twenty-five percent or greater, if the development creates 5,000 square feet or more of impervious surface	N/A	
Environmentally Sensitive Areas: All development and redevelopment located within or directly adjacent to or discharging directly to an environmentally sensitive area (where discharges from the development or redevelopment will enter receiving waters within the environmentally sensitive area), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition.	N/A	
Parking Lots 5,000 square feet or more or with 15 parking spaces or more and potentially exposed to urban runoff	X	
Streets, roads, highways, and freeways which would create a new paved surface that is 5,000 square feet or greater		X

Limited Exclusion: Trenching and resurfacing work associated with utility projects are not considered priority projects. Parking lots, buildings and other structures associated with utility projects are subject to SUSMP requirements if one or more of the criteria above are met.

If you answered **NO** to all the questions, then **STOP**. Please complete a Minor SWMP for your project.

If you answered **YES** to any of the questions, please continue.

The following questions provide a guide to collecting information relevant to project stormwater quality issues. Please provide a description of the findings in text box below.

	QESTIONS	COMPLETED	NA
1.	Describe the topography of the project area.	✓	
2.	Describe the local land use within the project area and adjacent areas.	✓	
3.	Evaluate the presence of dry weather flow.		N/A
4.	Determine the receiving waters that may be affected by the project throughout the project life cycle (i.e., construction, maintenance and operation).	✓	
5.	For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern.	✓	
6.	Determine if there are any High Risk Areas (municipal or domestic water supply reservoirs or groundwater percolation facilities) within the project limits.	✓	
7.	Determine the Regional Board special requirements, including TMDLs, effluent limits, etc.		N/A
8.	Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves.	✓	
9.	If considering Treatment BMPs, determine the soil classification, permeability, erodibility, and depth to groundwater.	✓	
10.	Determine contaminated or hazardous soils within the project area.	✓	

Please provide a description of the findings in the following box. For example:
The project is located in the San Diego Hydrologic unit. The area is characterized by rolling grassy hills and shrubs. Runoff from the project drains into a MS4 that eventually drains to Los Coches Creek. Within the project limit there are no 303(d) impaired receiving water and no Regional Board special requirements.

The project is located in the San Luis Rey Hydrologic unit. The ~~Monserate~~ SAN MARCOS CREEK sub-area with basin number 903.~~20~~12. The area is hilly with various shrubs and trees. Some areas are grassy and open, there is light development in the area. Run-off from the site runs directly into Ostrich farms creek. The Creek runs into the San Luis Rey river, which eventually runs to the Pacific Ocean. The receiving waters are on the 2002 CWA 303(d) list of impaired waters. The San Luis Rey river has problems with chloride and total dissolved solids. The Pacific ocean at the mouth of the San Luis Rey river has Bacteria indicators.

Complete the checklist below to determine if Treatment Best Management Practices (BMPs) are required for the project.

No.	CRITERIA	YES	NO	INFORMATION

No.	CRITERIA	YES	NO	INFORMATION
1.	Is this an emergency project		X	If YES, go to 6. If NO, continue to 2.
2.	Have TMDLs been established for surface waters within the project limit?		X	If YES, go to 5. If NO, continue to 3.
3.	Will the project directly discharge to a 303(d) impaired receiving water body?		X	If YES, go to 5. If NO, continue to 4.
4.	Is this project within the urban and environmentally sensitive areas as defined on the maps in Appendix B of the *County of San Diego Standard Urban Storm Water Mitigation Plan for Land Development and Public Improvement Projects*?			If YES, continue to 5. If NO, go to 6.
5.	Consider approved Treatment BMPs for the project.	X		If YES, go to 7.
6.	Project is not required to consider Treatment BMPs			Document for Project Files by referencing this checklist.
7.	End			

Now that the need for a treatment BMPs has been determined, other information is needed to complete the SWMP.

WATERSHED

Please check the watershed(s) for the project.

☐ San Juan	☐ Santa Margarita	☒ San Luis Rey	☐ Carlsbad
☐ San Dieguito	☐ Penasquitos	☐ San Diego	☐ Pueblo San Diego
☐ Sweetwater	☐ Otay	☐ Tijuana	

Please provide the hydrologic sub-area and number(s)

Number	Name
90312	BONSALL HSA

Please provide the beneficial uses for Inland Surface Waters and Ground Waters. Beneficial Uses can be obtained from the Water Quality Control Plan For The San Diego Basin, which is available at the Regional Board office or at http://www.swrcb.ca.gov/rwqcb9/programs/basinplan.html.

SURFACE WATERS	Hydrologic Unit Basin Number	MUN	AGR	IND	PROC	GWR	FRESH	POW	REC1	REC2	BIOL	WARM	COLD	WILD	RARE	SPWN	LAKE MIR.
Inland Surface Waters																	
SAN LUIS REY RIVER	3.12		X	X					X	X		X		X			
Ground Waters																	
BONSALL	3.12	X	X	X													
MOUTH OF SAN LUIS REY RIVER	3.11								X	X				X	X		X X

*** Excepted from Municipal**

X Existing Beneficial Use
0 Potential Beneficial Use

POLLUTANTS OF CONCERN

Using Table 1, identify pollutants that are anticipated to be generated from the proposed priority project categories. Pollutants associated with any hazardous material sites that have been remediated or are not threatened by the proposed project are not considered a pollutant of concern.

Table 1. Anticipated and Potential Pollutants Generated by Land Use Type

	General Pollutant Categories								
Priority Project Categories	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Detached Residential Development	X	X			X	X	X	X	X
Attached Residential Development	X	X			X	P[(1)]	P[(2)]	P	X
Commercial Development >100,000 ft^2	P[(1)]	P[(1)]		P[(2)]	X	P[(5)]	X	P[(3)]	P[(5)]
Automotive Repair Shops			X	X[(4)(5)]	X		X		
Restaurants					X	X	X	X	
Hillside Development >5,000 ft^2	X	X			X	X	X		X

	General Pollutant Categories								
Priority Project Categories	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Parking Lots	P(1)	P(1)	X		X	P(1)	X		P(1)
Streets, Highways & Freeways	X	P(1)	X	X(4)	X	P(5)	X		

X = anticipated
P = potential
(1) A potential pollutant if landscaping exists on-site.
(2) A potential pollutant if the project includes uncovered parking areas.
(3) A potential pollutant if land use involves food or animal waste products.
(4) Including petroleum hydrocarbons.
(5) Including solvents.

Note: If other monitoring data that is relevant to the project is available. Please include as Attachment C.

CONSTRUCTION BMPs

Please check the construction BMPs that may be used. The BMPs selected are those that will be implemented during construction of the project. The applicant is responsible for the placement and maintenance of the BMPs selected.

- ☒ Silt Fence
- ☐ Fiber Rolls
- ☒ Street Sweeping and Vacuuming
- ☐ Storm Drain Inlet Protection
- ☒ Stockpile Management
- ☒ Solid Waste Management
- ☒ Stabilized Construction Entrance/Exit
- ☐ Dewatering Operations
- ☐ Vehicle and Equipment Maintenance
- ☒ Desilting Basin
- ☒ Gravel Bag Berm
- ☐ Sandbag Barrier
- ☒ Material Delivery and Storage
- ☒ Spill Prevention and Control
- ☒ Concrete Waste Management
- ☒ Water Conservation Practices
- ☐ Paving and Grinding Operations

☒ Any minor slopes created incidental to construction and not subject to a major or minor grading permit shall be protected by covering with plastic or tarp prior to a rain event, and shall have vegetative cover reestablished within 180 days of completion of the slope and prior to final building approval.

SITE DESIGN

To minimize stormwater impacts, site design measures must be addressed. The following checklist provides options for avoiding or reducing potential impacts during project planning. If

YES is checked, it is assumed that the measure was used for this project. If NO is checked, please provide a brief explanation why the option was not selected in the text box below.

	OPTIONS		YES	NO	N/A
1.	Can the project be relocated or realigned to avoid/reduce impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions?		X		
2.	Can the project be designed to minimize impervious footprint?		X		
3.	Conserve natural areas where feasible?		X		
4.	Where landscape is proposed, can rooftops, impervious sidewalks, walkways, trails and patios be drained into adjacent landscaping?		X		
5.	For roadway projects, can structures and bridges be designed or located to reduce work in live streams and minimize construction impacts?		X		
6.	Can any of the following methods be utilized to minimize erosion from slopes:				
	6.a.	Disturbing existing slopes only when necessary?	X		
	6.b.	Minimize cut and fill areas to reduce slope lengths?	X		
	6.c.	Incorporating retaining walls to reduce steepness of slopes or to shorten slopes?	X		
	6.d.	Providing benches or terraces on high cut and fill slopes to reduce concentration of flows?		X	
	6.e.	Rounding and shaping slopes to reduce concentrated flow?	X		
	6.f.	Collecting concentrated flows in stabilized drains and channels?	X		

Please provide a brief explanation for each option that was checked NO in the following box.

6D NO HIGH CUT OR FILL SLOPE EXISTS THAT WOULD REQUIRE A BENCH [illegible] DRAINAGE IS PROVIDED AT ALL SLOPES.

2. PERVIOUS PAVERS WILL BE USED AT ENTRANCE. TO MINIMIZE IMPERVIOUS AREAS.

If the project includes work in channels, then complete the following checklist. Information shall be obtained from the project drainage report. N/A

No.	CRITERIA	YES	NO	N/A	COMMENTS
1.	Will the project increase velocity or volume of downstream flow?				If YES go to 5.
2.	Will the project discharge to unlined channels?				If YES go to 5.
3.	Will the project increase potential sediment load of downstream flow?				If YES go to 5.

No.	CRITERIA	YES	NO	N/A	COMMENTS
4.	Will the project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability?				If YES go to 7.
5.	Review channel lining materials and design for stream bank erosion.				Continue to 6.
6.	Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity.				Continue to 7.
7.	Include, where appropriate, energy dissipation devices at culverts.				Continue to 8.
8.	Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour.				Continue to 9.
9.	Include, if appropriate, detention facilities to reduce peak discharges.				
10.	"Hardening" natural downstream areas to prevent erosion is not an acceptable technique for protecting channel slopes, unless pre-development conditions are determined to be so erosive that hardening would be required even in the absence of the proposed development.				Continue to 11.
11.	Provide other design principles that are comparable and equally effective.				Continue to 12.
12.	End				

SOURCE CONTROL

Please complete the following checklist for Source Control BMPs. If the BMP is not applicable for this project, then check N/A only at the main category.

BMP			YES	NO	N/A
1.	**Provide Storm Drain System Stenciling and Signage**				
	1.a.	All storm drain inlets and catch basins within the project area shall have a stencil or tile placed with prohibitive language (such as: "NO DUMPING – DRAINS TO Creek") and/or graphical icons to discourage illegal dumping.	X		
	1.b.	Signs and prohibitive language and/or graphical icons, which prohibit illegal dumping, must be posted at public access points along channels and creeks within the project area.	X		
2.	**Design Outdoors Material Storage Areas to Reduce Pollution Introduction**				
	2.a.	This is a detached single-family residential project. Therefore, personal storage areas are exempt from this requirement.			X
	2.b.	Hazardous materials with the potential to contaminate urban runoff shall either be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the storm water conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs.	X		

	BMP		YES	NO	N/A
	2.c.	The storage area shall be paved and sufficiently impervious to contain leaks and spills.	X		
	2.d.	The storage area shall have a roof or awning to minimize direct precipitation within the secondary containment area.	X		
3.	**Design Trash Storage Areas to Reduce Pollution Introduction**				
	3.a.	Paved with an impervious surface, designed not to allow run-on from adjoining areas, screened or walled to prevent off-site transport of trash; – or,	X		
	3.b.	Provide attached lids on all trash containers that exclude rain, or roof or awning to minimize direct precipitation.	X		
4.	**Use Efficient Irrigation Systems & Landscape Design**				
	The following methods to reduce excessive irrigation runoff shall be considered, and incorporated and implemented where determined applicable and feasible.				
	4.a.	Employing rain shutoff devices to prevent irrigation after precipitation.	X		
	4.b.	Designing irrigation systems to each landscape area's specific water requirements.	X		
	4.c.	Using flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.	X		
	4.d.	Employing other comparable, equally effective, methods to reduce irrigation water runoff.	X		
5.	**Private Roads**				X
	The design of private roadway drainage shall use at least one of the following				
	5.a.	Rural swale system: street sheet flows to vegetated swale or gravel shoulder, curbs at street corners, culverts under driveways and street crossings.			
	5.b.	Urban curb/swale system: street slopes to curb, periodic swale inlets drain to vegetated swale/biofilter.			
	5.c.	Dual drainage system: First flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder, high flows connect directly to storm water conveyance system.			
	5.d.	Other methods that are comparable and equally effective within the project.			
6.	**Residential Driveways & Guest Parking**				
	The design of driveways and private residential parking areas shall use one at least of the following features.				
	6.a.	Design driveways with shared access, flared (single lane at street) or wheelstrips (paving only under tires); or, drain into landscaping prior to discharging to the storm water conveyance system.	X		
	6.b.	Uncovered temporary or guest parking on private residential lots may be: paved with a permeable surface; or, designed to drain into landscaping prior to discharging to the storm water conveyance system.	X		
	6.c.	Other features which are comparable and equally effective.	X		
7.	**Dock Areas**				X
	Loading/unloading dock areas shall include the following.				
	7.a.	Cover loading dock areas, or design drainage to preclude urban run-on and runoff.			
	7.b.	Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.			

	BMP		YES	NO	N/A
	7.c.	Other features which are comparable and equally effective.			
8.	**Maintenance Bays**				X
	Maintenance bays shall include the following.				
	8.a.	Repair/maintenance bays shall be indoors; or, designed to preclude urban run-on and runoff.			
	8.b.	Design a repair/maintenance bay drainage system to capture all wash water, leaks and spills. Connect drains to a sump for collection and disposal. Direct connection of the repair/maintenance bays to the storm drain system is prohibited. If required by local jurisdiction, obtain an Industrial Waste Discharge Permit.			
	8.c.	Other features which are comparable and equally effective.			
9.	**Vehicle Wash Areas**				X
	Priority projects that include areas for washing/steam cleaning of vehicles shall use the following.				
	9.a.	Self-contained; or covered with a roof or overhang.			
	9.b.	Equipped with a clarifier or other pretreatment facility.			
	9.c.	Properly connected to a sanitary sewer.			
	9.d.	Other features which are comparable and equally effective.			
10.	**Outdoor Processing Areas**				X
	Outdoor process equipment operations, such as rock grinding or crushing, painting or coating, grinding or sanding, degreasing or parts cleaning, waste piles, and wastewater and solid waste treatment and disposal, and other operations determined to be a potential threat to water quality by the County shall adhere to the following requirements.				
	10.a.	Cover or enclose areas that would be the most significant source of pollutants; or, slope the area toward a dead-end sump; or, discharge to the sanitary sewer system following appropriate treatment in accordance with conditions established by the applicable sewer agency.			
	10.b.	Grade or berm area to prevent run-on from surrounding areas.			
	10.c.	Installation of storm drains in areas of equipment repair is prohibited.			
	10.d.	Other features which are comparable or equally effective.			
11.	**Equipment Wash Areas**				X
	Outdoor equipment/accessory washing and steam cleaning activities shall be.				
	11.a.	Be self-contained; or covered with a roof or overhang.			
	11.b.	Be equipped with a clarifier, grease trap or other pretreatment facility, as appropriate			
	11.c.	Be properly connected to a sanitary sewer.			
	11.d.	Other features which are comparable or equally effective.			
12.	**Parking Areas**				
	The following design concepts shall be considered, and incorporated and implemented where determined applicable and feasible by the County.				
	12.a.	Where landscaping is proposed in parking areas, incorporate landscape areas into the drainage design.	X		
	12.b.	Overflow parking (parking stalls provided in excess of the County's minimum parking requirements) may be constructed with permeable paving.	X		
	12.c.	Other design concepts that are comparable and equally effective.	X		
13.	**Fueling Area**				X

		BMP	YES	NO	N/A
	Non-retail fuel dispensing areas shall contain the following.				
	13.a.	Overhanging roof structure or canopy. The cover's minimum dimensions must be equal to or greater than the area within the grade break. The cover must not drain onto the fuel dispensing area and the downspouts must be routed to prevent drainage across the fueling area. The fueling area shall drain to the project's treatment control BMP(s) prior to discharging to the storm water conveyance system.			
	13.b.	Paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete shall be prohibited.			
	13.c.	Have an appropriate slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of urban runoff.			
	13.d.	At a minimum, the concrete fuel dispensing area must extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.			

Please list other project specific Source Control BMPs in the following box. Write **N/A** if there are none.

PROFESSIONAL STAFF WILL MAINTAIN THE SITE

TREATMENT CONTROL

To select a structural treatment BMP using Treatment Control BMP Selection Matrix (Table 2), each priority project shall compare the list of pollutants for which the downstream receiving waters are impaired (if any), with the pollutants anticipated to be generated by the project (as identified in Table 1). Any pollutants identified by Table 1, which are also causing a Clean Water Act section 303(d) impairment of the receiving waters of the project, shall be considered primary pollutants of concern. Priority projects that are anticipated to generate a primary pollutant of concern shall select a single or combination of stormwater BMPs from Table 2, which **maximizes pollutant removal** for the particular primary pollutant(s) of concern.

Priority projects that are **not** anticipated to generate a pollutant for which the receiving water is Clean Water Act Section 303(d) impaired shall select a single or combination of stormwater BMPs from Table 2, which are effective for pollutant removal of the identified secondary pollutants of concern, consistent with the "maximum extent practicable" standard.

Table 2. Treatment Control BMP Selection Matrix

Pollutant of Concern	*Treatment Control BMP Categories*						
	Biofilters	Detention Basins	Infiltration Basins[2]	Wet Ponds or Wetlands	Drainage Inserts	Filtration	Hydrodynamic Separator Systems[3]
Sediment	M	H	H	H	L	H	M

Pollutant of Concern	*Treatment Control BMP Categories*						
	Biofilters	Detention Basins	Infiltration Basins[2]	Wet Ponds or Wetlands	Drainage Inserts	Filtration	Hydrodynamic Separator Systems[3]
Nutrients	L	M	M	M	L	M	L
Heavy Metals	M	M	M	H	L	H	L
Organic Compounds	U	U	U	M	L	M	L
Trash & Debris	L	H	U	H	M	H	M
Oxygen Demanding Substances	L	M	M	M	L	M	L
Bacteria	U	U	H	H	L	M	L
Oil & Grease	M	M	U	U	L	H	L
Pesticides	U	U	U	L	L	U	L

(1) Copermittees are encouraged to periodically assess the performance characteristics of many of these BMPs to update this table.
(2) Including trenches and porous pavement.
(3) Also known as hydrodynamic devices and baffle boxes.

L: Low removal efficiency):
M: Medium removal efficiency):
H: High removal efficiency):
U: Unknown removal efficiency

Sources: *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (1993), *National Stormwater Best Management Practices Database* (2001), *Guide for BMP Selection in Urban Developed Areas* (2001), *and Caltrans New Technology Report (2001).*

A Treatment BMP must address runoff from developed areas. Please provide the post-construction water quality values for the project. Label outfalls on the BMP map. Q_{WQ} is dependent on the type of treatment BMP selected for the project.

Outfall	Tributary Area (acres)	Q_{100} (cfs)	Q_{WQ} (cfs)
NODE (3)	15.12 ACRES	29.85	0.2

Please check the box(s) that best describes the Treatment BMP(s) selected for this project.

Biofilters

☒ Grass swale
☐ Grass strip
☐ Wetland vegetation swale
☐ Bioretention

Detention Basins

☐ Extended/dry detention basin with grass lining
☐ Extended/dry detention basin with impervious lining

Infiltration Basins

☐ Infiltration basin

☐ Infiltration trench
☐ Porous asphalt
☐ Porous concrete
☐ Porous modular concrete block

~~Wet Ponds or Wetlands~~

☐ Wet pond/basin (permanent pool)
☐ Constructed wetland

Drainage Inserts (See note below)

☐ Oil/Water separator
☐ Catch basin insert
☐ Storm drain inserts
☐ Catch basin screens

Filtration

☐ Media filtration
☐ Sand filtration

Hydrodynamic Separator Systems

☐ Swirl Concentrator
☐ Cyclone Separator
☐ Baffle Separator
☐ Gross Solids Removal Device
☐ Linear Radial Device

Note: Catch basin inserts and storm drain inserts are excluded from use on County maintained right-of-way and easements.

Include Treatment Datasheet as Attachment E. The datasheet should include the following:	COMPLETED	NO
1. Description of how treatment BMP was designed. Provide a description for each type of treatment BMP.	✓	
2. Engineering calculations for the BMP(s)	✓	

Please describe why the selected treatment BMP(s) was selected for this project. For projects utilizing a low performing BMP, please provide a detailed explanation.

The anticipated and potential pollutants for the site are sediments, nutrients, trash & debris, oxygen demanding substances, oil & grease, & pesticides with the potential for bacteria & viruses. The pollutants of concern in the receiving waters are bacteria, cloride & total desolved solids. See attached 303(d) list. The primary potential pollutant of concern is bacteria. The remaining pollutants are secondary pollutants of concern. ~~Drain inserts~~, a bioswale and limited infiltration will be used to treat the water. Using multiple treatments will provide some additional pollutant removal where removal efficiency is low. AND BACTERIA TOTAL WILL ALSO BE TREATED

MAINTENANCE

Please check the box that best describes the maintenance mechanism(s) for this project.

CATEGORY	SELECTED	
	YES	NO

First	X	
Second		
Third		
Fourth		

ATTACHMENTS

Please include the following attachments.

	ATTACHMENT	COMPLETED	N/A
A	Project Location Map	X	
B	Site Map	X	
C	Relevant Monitoring Data		
D	Treatment BMP Location Map	X	
E	Treatment BMP Datasheets		
F	Operation and Maintenance Program for Treatment BMPs	X	
G	Fiscal Resources	X	
H	Certification Sheet		
I	Addendum		

Note: Attachments A and B may be combined.

303(D) LIST OF IMPAIRED WATERS
BENEFICIAL USES TABLE

2002 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENT

Approved by USEPA: July 2003

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

9	C	Pacific Ocean Shoreline, San Dieguito HU	90511000			
				Bacteria Indicators	Low	0.86 Miles
				Impairment located at San Dieguito Lagoon Mouth, Solana Beach.		
				Nonpoint/Point Source		
9	C	Pacific Ocean Shoreline, San Joaquin Hills HSA	90111000			
				Bacteria Indicators	Low	0.63 Miles
				Impairment located at Cameo Cove at Irvine Cove Dr./Riviera Way, Heisler Park-North		
				Urban Runoff/Storm Sewers		
				Unknown Nonpoint Source		
				Unknown point source		
9	C	Pacific Ocean Shoreline, San Luis Rey HU	90311000			
				Bacteria Indicators	Low	0.49 Miles
				Impairment located at San Luis Rey River Mouth.		
				Nonpoint/Point Source		
9	C	Pacific Ocean Shoreline, San Marcos HA	90451000			
				Bacteria Indicators	Low	0.5 Miles
				Impairment located at Moonlight State Beach.		
				Nonpoint/Point Source		
9	C	Pacific Ocean Shoreline, Scripps HA	90630000			
				Bacteria Indicators	Medium	3.9 Miles
				Impairment located at La Jolla Shores Beach at El Paseo Grande, La Jolla Shores Beach at Caminito Del Oro, La Jolla Shores Beach at Vallecitos, La Jolla Shores Beach at Ave de la Playa, Casa Beach (Childrens Pool), South Casa Beach at Coast Blvd., Whispering Sands Beach at Ravina St., Windansea Beach at Vista de la Playa, Windansea Beach at Bonair St., Windansea Beach at Playa del Norte, Windansea Beach at Palomar Ave., Tourmaline Surf Park, Pacific Beach at Grand Ave.		
				Nonpoint/Point Source		
9	C	Pacific Ocean Shoreline, Tijuana HU	91111000			
				Bacteria Indicators	Low	3 Miles
				Impairment located from the border, extending north along the shore.		
				Nonpoint/Point Source		
9	R	Pine Valley Creek (Upper)	91141000			
				Enterococci	Medium	2.9 Miles
				Grazing-Related Sources		
				Concentrated Animal Feeding Operations (permitted, point source)		
				Transient encampments		

2002 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENT

Approved by USEPA: July 2003

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

				Phosphorus	**Low**	**12**	**Miles**
				Impairment transcends adjacent Calwater watershed 90712.			
				Urban Runoff/Storm Sewers			
				Unknown Nonpoint Source			
				Unknown point source			
				Total Dissolved Solids	**Low**	**12**	**Miles**
				Impairment transcends adjacent Calwater watershed 90712.			
				Urban Runoff/Storm Sewers			
				Flow Regulation/Modification			
				Natural Sources			
				Unknown Nonpoint Source			
				Unknown point source			
9	**E**	**San Elijo Lagoon**	**90461000**				
				Bacteria Indicators	**Low**	**566**	**Acres**
				Estimated size of impairment is 150 acres.			
				Nonpoint/Point Source			
				Eutrophic	**Low**	**566**	**Acres**
				Estimated size of impairment is 330 acres.			
				Nonpoint/Point Source			
				Sedimentation/Siltation	**Medium**	**566**	**Acres**
				Estimated size of impairment is 150 acres.			
				Nonpoint/Point Source			
9	**R**	**San Juan Creek**	**90120000**				
				Bacteria Indicators	**Medium**	**1**	**Miles**
				Nonpoint/Point Source			
9	**E**	**San Juan Creek (mouth)**	**90120000**				
				Bacteria Indicators	**Medium**	**6.3**	**Acres**
				Nonpoint/Point Source			
9	**R**	**San Luis Rey River**	**90311000**				
				Chloride	**Low**	**19**	**Miles**
				Impairment located at lower 13 miles.			
				Urban Runoff/Storm Sewers			
				Unknown Nonpoint Source			
				Unknown point source			

2002 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENT

Approved by USEPA: July 2003

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

				Total Dissolved Solids		Low	19 Miles
					Industrial Point Sources		
					Agriculture-storm runoff		
					Urban Runoff/Storm Sewers		
					Surface Mining		
					Flow Regulation/Modification		
					Natural Sources		
					Golf course activities		
					Unknown Nonpoint Source		
					Unknown point source		
9	R	Sandia Creek	90222000				
				Total Dissolved Solids		Low	1.5 Miles
					Urban Runoff/Storm Sewers		
					Flow Regulation/Modification		
					Natural Sources		
					Unknown Nonpoint Source		
					Unknown point source		
9	E	Santa Margarita Lagoon	90211000				
				Eutrophic		Low	28 Acres
					Nonpoint/Point Source		
9	R	Santa Margarita River (Upper)	90222000				
				Phosphorus		Low	18 Miles
					Urban Runoff/Storm Sewers		
					Unknown Nonpoint Source		
					Unknown point source		
9	R	Segunda Deshecha Creek	90130000				
				Phosphorus		Low	0.92 Miles
					Urban Runoff/Storm Sewers		
					Unknown Nonpoint Source		
					Unknown point source		
				Turbidity		Low	0.92 Miles
					Construction/Land Development		
					Urban Runoff/Storm Sewers		
					Channelization		
					Flow Regulation/Modification		
					Unknown Nonpoint Source		
					Unknown point source		

Table 2-3. BENEFICIAL USES OF COASTAL WATERS

Coastal Waters	Hydrologic Unit Basin Number	BENEFICIAL USE															
		IND	NAV	REC 1	REC 2	COMM	BIOL	EST	WILD	RARE	MAR	AQUA	MIGR	SPWN	WARM	SHELL
Coastal Lagoons - continued																	
Buena Vista Lagoon [2]	4.21			●	●		●	O	●	●	●				●	
Loma Alta Slough	4.10			●	●			●	●	●	●					
Mouth of San Luis Rey River	3.11			●	●				●	●	●		●			
Santa Margarita Lagoon	2.11			●	●			●	●	●	●		●	●		
Aliso Creek Mouth	1.13			●	●				●	●	●					
San Juan Creek Mouth	1.27			●	●				●	●	●		●			●
San Mateo Creek Mouth	1.40			●	●		●		●	●	●		●	●		
San Onofre Creek Mouth	1.51			●	●				●	●	●		●	●		

1 Includes the tidal prisms of the Otay and Sweetwater Rivers.
2 Fishing from shore or boat permitted, but other water contact recreational (REC-1) uses are prohibited.

● Existing Beneficial Use
O Potential Beneficial Use

Table 2-5. BENEFICIAL USES OF GROUND WATERS

Ground Water		Hydrologic Unit Basin Number	BENEFICIAL USE					
			MUN	AGR	IND	PROC	FRSH	GWR
SANTA MARGARITA HYDROLOGIC UNIT		**2.00**						
Ysidora	HA [2]	2.10	●	●	●	●		
Deluz	HA	2.20	●	●	●			
Murrieta	HA	2.30	●	●	●	●		
Alud	HA	2.40	●	●	●			
Pechanga	HA	2.50	●	●	●			
Wilson	HA	2.60	●	●	O			
Cave Rocks	HA	2.70	●	●				
Aguanga	HA	2.80	●	●	●			
Oakgrove	HA	2.90	●	●				
SAN LUIS REY HYDROLOGIC UNIT		**3.00**						
Lower San Luis	HA [2]	3.10	●	●	●			
Monserate	HA	3.20						
Pala	HSA	3.21	●	●	●			
Pauma	HSA	3.22	●	●	●			
La Jolla Amago	HSA	3.23	●	●	●	●		
Warner Valley	HA	3.30						
Warner	HSA	3.31	●	●	●		●	
Combs	HSA	3.32	●	●	●			

2 These beneficial uses do not apply westerly of the easterly boundary of the right-of-way of Interstate Highway 5 and this area is excepted from the sources of drinking water policy. The beneficial uses for the remainder of the hydrologic area are as shown.

● Existing Beneficial Use

O Potential Beneficial Use

Table 2-2. BENEFICIAL USES OF INLAND SURFACE WATERS

Inland Surface Waters [1,2]	Hydrologic Unit Basin Number	BENEFICIAL USE															
		MUN	AGR	IND	PROC	GWR	FRSH	POW	REC1	REC2	BIOL	WARM	COLD	WILD	RARE	SPWN
San Luis Rey River Watershed - continued																	
Harrison Canyon	3.22	●	●	●				●	●	●		●	●	●		
Jaybird Creek	3.22	●	●	●				●	●	●		●	●	●		
Frey Creek	3.22	●	●	●				●	●	●		●	●	●		
Agua Tibia Creek	3.22	●	●	●				●	●	●		●	●	●		●
San Luis Rey River	3.21	●	●	●					●	●		●	●	●		
Marion Canyon	3.21	●	●	●					●	●		●	●	●		
Magee Creek	3.21	●	●	●					●	●		●	●	●		
Castro Canyon	3.21	●	●	●					●	●		●	●	●		
Trujillo Creek	3.21	●	●	●					●	●		●	●	●		
Pala Creek	3.21	●	●	●					●	●		●	●	●		●
Gomez Creek	3.21	●	●	●					●	●		●	●	●		
Couser Canyon	3.21	●	●	●					●	●		●	●	●		
Double Canyon	3.21	●	●	●					●	●		●	●	●		
Rice Canyon	3.21	●	●	●					●	●		●	●	●		
San Luis Rey River, Bonsall	3.12	+	●	●					●	●		●		●	●	
Keys Creek	3.12	+	●	●					●	●		●		●		
Moosa Canyon	3.15	+	●	●					●	●		●		●		

● Existing Beneficial Use

O Potential Beneficial Use

\+ Excepted From MUN (See Text)

1 Waterbodies are listed multiple times if they cross hydrologic area or sub area boundaries.

2 Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

5.0 Maintenance Requirements for Treatment BMPs

This chapter provides guidelines for preparation of a Stormwater Maintenance Plan (SMP) for any structural treatment BMPs associated with discretionary project. The SMP is prepared by the proponent and incorporated in the project SWMP.

The effectiveness of the SWMP relies partially on maintenance of any Structural Treatment BMPs proposed for a project. The performance of permanent BMPs is dependent on the maintenance efforts conducted to ensure its ability to treat pollutant loads. The WPO obligates dischargers, and owners and occupants of land to maintain all structural treatment BMPs that are part of their project. The County shall not consider structural BMPs "effective," and therefore shall not accept storm water BMPs as meeting the MEP standard, unless a mechanism is in place that will ensure ongoing long-term maintenance of all structural BMPs.

The SMP describes the responsibilities for the care and upkeep of these permanent BMPs. Improper or inadequate maintenance of this type of BMP could impact storm water and receiving water quality. The SMP is the component of the SWMP that describes:

- The program to maintain permanent structural treatment BMPs including frequency and type of maintenance, safety precautions, and reporting/record keeping.
- The program to implement maintenance of these BMPs may be included as part of other ongoing maintenance activities for the project.
- Maintenance activities must include information and responses concerning potential storm water pollution from accidental spills, illicit connections, illegal discharges and illegal dumping within the Structural Treatment BMPs.
- On-going funding for the proposed maintenance activities.

SEE APPENDIX H.

Early consideration and planning of maintenance efforts ensures that water quality will be addressed for many years to come. Development of a SMP is required when submitting the Project Application if the proposed project includes Structural Treatment BMPs. In addition, the SMP must meet with County approval and is a living document, which could require changes during project development.

Structural Treatment BMPs that must be maintained include but are not limited to the following:

1. Biofilters
2. ~~Detention Basins~~
3. ~~Infiltration BMP~~
4. ~~Wet Ponds and Wetlands~~
5. ~~Storm Drain Inserts, Oil/Water separator, Catch basin insert & screens.~~
6. ~~Filtration Systems~~

7. Hydrodynamic Separators

5.1 Proof of a Mechanism to Ensure Maintenance of Treatment BMPs

As part of project review, if a project proponent is required to include interim or permanent structural BMPs in project plans, and if the SWMP does not provide a mechanism for BMP maintenance, the County will require that the applicant provide verification of maintenance requirements through such means as may be appropriate, at the discretion of the County, including, but not limited to covenants, legal agreements, maintenance agreements, and/or conditional use permits. The project proponent is required to provide a signed statement acknowledging responsibility for structural BMP maintenance, repair and replacement until the County accepts an alternative mechanism to ensure such maintenance, repair and replacement.

Potentially acceptable mechanisms for ensuring BMP maintenance includes the following:

~~(a) County maintenance. The~~ The County may agree to accept ownership of and to maintain the BMP, under such conditions as it deems appropriate.

~~(b) Maintenance by another~~ public entity. The County may agree that another public or acceptable quasi-public entity (e.g., the County Flood Control District, a state or federal resource agency, or a conservation conservancy) may assume responsibility for maintenance, repair and replacement of the BMP in lieu of the developer. The County may require that some or all estimated maintenance costs be front-funded or reliably guaranteed, (e.g., through a trust fund, assessment district fees, bond, letter of credit or similar means). In addition, the County may seek protection from liability by appropriate releases and indemnities.

The developer must provide any public entity accepting maintenance obligations sufficient ownership or easement interests to allow maintenance, repair and replacement of BMPs. If structural BMPs are located within a public area proposed for transfer, they will be the responsibility of the developer until the County or other public entity accepts them. Structural BMPs proposed for transfer to any other public entity must be approved by the County prior to installation. The County shall be involved in the negotiation of maintenance requirements with any other public entities accepting maintenance responsibilities. The County must be identified as a third party beneficiary empowered to enforce any such maintenance agreement.

(c) Maintenance by a subsequent owner. The County may agree that sufficient assurance of maintenance is provided by the responsibility the WPO imposes on subsequent owners of the BMP to maintain that BMP. The County may decline to accept this mechanism as an adequate developer assurance if the County concludes in its sole discretion that any

subsequent owner(s) may be unable or unwilling to maintain, repair or replace the BMP despite the legal obligation to do so. The County may condition acceptance of this mechanism on a backup agreement with the developer, a related natural person to ultimately be accountable to the County to pay all costs for BMP maintenance, repair or replacement if a subsequent owner fails to perform. Acknowledgements or responsibility or other contractual agreement with the subsequent owners may also be required.

~~(d) County Service Area~~ or Assessment District. The developer can create a County Service Area (CSA) or other funding mechanism to provide funds for BMP maintenance, repair and replacement on an ongoing basis. If that mechanism could be compromised or eliminated by any subsequent vote, the County may condition acceptance of this mechanism on an agreement that would preclude such compromise or elimination, and/or on a backup agreement with the developer or a related natural person to ultimately be accountable to the County to pay all costs for BMP maintenance, repair or replacement if funding and maintenance by a CSA or Assessment District proved to be inadequate for any reason.

~~(e) Lease provisions.~~ In those cases where the County holds title to the land in question, and the land is being leased to another party for private or public use, the County may assure storm water BMP maintenance, repair and replacement through conditions in the lease.

(f) Conditional use permits. For discretionary projects that require a use permit, the County may agree that the inclusion of appropriate terms in the use permit will provide sufficient assurance maintenance of storm water BMPs. The County may condition acceptance of this mechanism on a backup agreement with the developer or a related natural person to ultimately be accountable to the County to pay all costs for BMP maintenance, repair or replacement if a subsequent owner fails to perform.

~~(g) Other mechanisms~~. The County in its discretion may accept other mechanisms for ensuring BMP maintenance, repair and replacement.

5.1.1 Right to Condition Acceptance of any Proposed Mechanism

The County in its discretion may decline to accept any proposed mechanism for assuring BMP maintenance, repair or replacement that is not supported by an adequate and reliable source of funds. The County in its discretion may also require that any such proposed mechanism be supported by back up agreements including but not limited to a back-up maintenance agreement with the developer or a related natural person.

5.2 Guidelines for Maintenance Plan Development

Maintenance activities or programs must be specified in sufficient detail for a third party to easily determine the actions necessary. The following items are required for the project SMP:

a. Information concerning the maintenance for each Post-construction Structural Treatment BMP, including routine actions, maintenance indicators, field measurement, measurement frequency, maintenance activity, and site-specific requirements;
b. Proposed provisions for monitoring of BMP and provisions for County compliance inspections;
c. List of indicator thresholds that will trigger maintenance activity.
d. Maintenance Activities Checklist;
e. Proposed methods of disposing of sediment and collected pollutants.
f. Cost estimate for annual maintenance activities, and;
g. Proposed mechanism for on-going funding of maintenance activities per section 5.4.

SEE APPENDIX H

Specific format and guidelines are included within Appendix C. In addition, Appendix H includes maintenance task and associated cost. The project proponent, at their discretion, can use this data as a preliminary estimate for the maintenance efforts needed for the project. Above items may be shown on other application documents such as the tentative map, preliminary grading plan, or preliminary drainage study. If this is done, the SWMP document must identify where each of these component pieces can be found.

Applicants must propose for County determination the appropriate maintenance mechanism for selected BMPs. The BMPs should fit into one of the following categories:

FIRST CATEGORY:

The County should have only minimal concern for ongoing maintenance. The proposed BMPs inherently "take care of themselves", or property owners can naturally be expected to do so as an incident of taking care of their property

Typical BMPs:

- Biofilters (Grass swale, Grass strip, vegetated buffer)
- Infiltration BMP (basin, trench)

Mechanisms to Assure Maintenance:

1. Stormwater Ordinance Requirement: The WPO requires this ongoing maintenance. In the event that the mechanisms below prove ineffective, or in addition to enforcing those mechanisms, civil action, criminal action or administrative citation could also be pursued for violations of the ordinance.

2. Public Nuisance Abatement: Under the WPO failure to maintain a BMP would constitute a public nuisance, which may be abated under the Uniform Public Nuisance Abatement Procedure. This provides an enforcement mechanism additional to the above, and would allow costs of maintenance to be billed to the owner, a lien placed on the property, and the tax collection process to be used.
3. Notice to Purchasers. Section 67.819(e) of the WPO requires developers to provide clear written notification to persons acquiring land upon which a BMP is located, or others assuming a BMP maintenance obligation, of the maintenance duty.
4. Conditions in Ongoing Land Use Permits: For those applications (listed in SO Section 67.804) upon whose approval ongoing conditions may be imposed, a condition will be added which requires the owner of the land upon which the stormwater facility is located to maintain that facility in accordance with the requirements specified in the SMP. Failure to perform maintenance may then be addressed as a violation of the permit, under the ordinance governing that permit process.
5. ~~Subdivision Public Report:~~ Tentative Map and Tentative Parcel Map approvals will be conditioned to require that, prior to approval of a Final or Parcel Map, the subdivider shall provide evidence to the Director of Public Works, that the subdivider has requested the California Department of Real Estate to include in the public report to be issued for the sales of lots within the subdivision, a notification regarding the maintenance requirement. (The requirement for this condition would not be applicable to subdivisions which are exempt from regulation under the Subdivided Lands Act, or for which no public report will be issued.)

Funding:
None Required.

#12-2005

STORMWATER MANAGEMENT PLAN
AND
STORMWATER MAINTENANCE PLAN

for

Eldercare Country Gardens
2800 Overland Trail
Fallbrook, California

MUP P04-058 Log # 04-02-053
APN 123-010-52-00

Prepared For

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Project #A50331W1

June 6, 2005

COPY

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SELECTION OF TREATMENT CONTROL BMPS 15-17

ATTACHED FIGURES

APPENDIX

Introduction

This report is furnished in response to the requirements of the County of San Diego for an Extended Initial Study on stormwater impact/water quality to determine the project's potential impact on the environment and to complete the California Environmental Quality Act (CEQA) Environmental Initial Study. The information provided follows Section 4.1, Guidelines for the County's Stormwater Management Plan and the County's Stormwater Maintenance Plan (see references).

The proposed subdivision can be built to be in compliance with the County's Watershed Protection Ordinance. This analysis provides for post-construction stormwater protection and ensures that the proposed Best Management Practices (BMPs) are effective with proper maintenance and long-term fiscal responsibility.

1.0 Project Description

The proposed project is for an assisted living facility for the elderly on approximately two acres, located on the northwesterly corner of Overland Trial and South Mission Road (County Highway S13), within the Fallbrook Community, in the unincorporated area of the County of San Diego, California. The project is approximately 2.6 miles south of the town center of Fallbrook, west of Interstate 15, and approximately 3.2 miles north of Highway 76 and South Mission Road.

The proposed project will consist of a single-story stand-alone structure, and will be a wood framed, stucco clad, residential-style group care building, which will support specific use suites including up to four as hospice dedicated rooms.

The project is bound on the east, across South Mission Road, and on the southeast, across Overland Trail, by Ostrich Farms Creek and native vegetation. The project is bound on the south by several large-lot singe-family homes, and on the west and north by vacant land with groves and native vegetation.

See Figures 1 and 2, in the attachments, for regional and local maps of the area. Figure 3 is an assessor's parcel map of the project site. Figures 4 and 5 are satellite aerial photographs of the project site. Figure 6 shows the site location and surrounding topography of the community. The elevation of the site ranges from approximately 495 feet above mean sea level on the northwestern boundary of the site to 473 feet on the southern boundary of the project. Figures 7 through 11 are current photographs taken of the site.

1.1 Topography and Land Use

The general site area is characterized by rolling hills with large-lot single-family estates with natural vegetation, avocado and citrus groves, and small commercial properties. The project slopes from north/northwest to the south/southeast.

The project has been utilized for mineral extraction operations, predominately for sourcing decomposed granite [DG] road bed material. The project site is currently a vacant graded parcel of land level with South Mission Road.

1.2 Hydrologic Unit Contribution

The proposed project site is located in the San Luis Rey Watershed, within the Lower San Luis Rey Hydrologic Area, (903.10), Bonsall Hydrologic Subarea (903.12), (Figure 11), which falls within the San Diego Hydrologic Unit. The proposed project is located on two acres of land which represents less than one percent of the watershed. The San Luis Rey Watershed, HU 903.11- 903.32, is made up of two major water bodies; the Sand Luis Rey River and Lake Henshaw. The San Luis Rey watershed is approximately 560 square miles in area. The project drains south to Ostrich Farms Creek which flows to the San Luis Rey River to the Oceanside Harbor/Del Mar Boat Basin and into the Pacific Ocean.

The major impacts to water bodies in this region are surface quality degradation, habitat loss, invasive species, and channel bed erosion. Constituents of concern are coliform bacteria, nitrate sediment and pesticides in groundwater. Sources and activities that could cause these pollutants are agricultural/orchards, livestock/domestic animals, urban runoff, sand mining, and septic systems.

2.0 Water Quality Environment

2.1 Beneficial Uses

The beneficial uses for the hydrologic unit are included in Tables 1.1 and 1.2. These tables have been extracted for the Water Quality Control Plan for the San Diego Basin.

MUN – Municipal and Domestic Supply: Includes uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
AGR – Agricultural Supply: Includes uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.
IND – Industrial Service Supply: Includes uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.
REC-1 – Contact Water Recreation: Includes uses of water for recreational activities involving body contact with water, where ingestion of water is a reasonable possibility. These uses include, but not limited to, swimming, wading, water-skiing, skin and SCUBA diving, surfing, white water activities, fishing or use of natural hot springs.
REC-2 – Non-contact Water Recreation: Includes uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyments in conjunction with the above activities.

3.0 Characterization of Project Runoff

3.1 Existing and Post-Construction Drainage

Patrick Harrison, a California Registered Professional Civil Engineer, prepared a hydrology study for the subject property (Appendix A). The main drainage course on the site is southeastern and drains across Overland Trail into Ostrich Farms Creek. Flow patterns will remain unchanged and stormwater will continue to be diverted to the local storm drain system after it is filtered during low stormwater flow conditions. During peak stormwater flow conditions, stormwater will sheet and channel flow along the vegetated swales of the project and eventually into Ostrich Farms Creek.

The study determined that the stormwater flow from a one-hundred-year average rainstorm (Q-100) from the drainage course would be 2.65 cubic feet per second (cfs), with C= 0.67, I-100 of 5.56 in/hr and an area of 2.0 acres. Additional BMPs are being proposed to control the additional increase in runoff (see Section 4 for proposed mitigation measures).

3.2 Post-Construction Expected Discharges

Discharge from the property will occur on the southeastern side of the project site and flow across Overland Trail, directly to Ostrich Farms Creek. The drainage will ultimately flow to the west, the San Luis Rey Unit, the project is located in the Lower San Luis Rey Hydrologic Area, (903.10), Bonsall Hydrologic Subarea (903.12) as defined by the Water Quality Control Plan for the San Diego Basin (see Figure 10). Figure 11 shows the surface water bodies within the project area.

According to the Anticipated and Potential Pollutants chart, Attachment G-1 of the Stormwater Standards Manual (SSM), the potential pollutants from the project area could include sediments, nutrients, trash and debris, oxygen-demanding substances, oil and grease, bacteria and viruses, and pesticides.

3.3 Soil Characteristics

According to the Soil Survey for the San Diego Area (see references), three soil types exist on site. The Central portion contains Clayey Alluvial land (Co), consists of moderately well drained, very deep, very dark brown to black, neutral to mildly alkaline clay loams to clay, and is a class D soil. The northern and western areas contain Fallbrook Sandy Loam (FaE2), contains well-drained, moderately deep to deep sane loams that formed in material weathered in place from granodiorite, runoff is medium to rapid, the erosion hazard is moderate to high and is a type C soil. The southwest and south contain Fallbrook Sandy Loam (FaD2), is consistent with the FaE2 characteristics, and is a class C soil and has a 9 to 15 percent slope.

The soil groups fall under the hydrologic groups C and D. Soil group C as a slow infiltration rate when thoroughly wetted, chiefly soils that have a layer impeding downward movement of water, or moderately fine to fine textured soil that have a slow infiltration rate. Rate of water transmission is slow. Group D soils have very slow infiltration rate when thoroughly wetted, chiefly clay have a high shrink-swell potential, soils that have a high permanent water table, soils that have a claypan or clay layer at or near the surface, that are shallow over nearly impervious material. Rate of water transmission is very slow.

4.0 Mitigation Measures to Protect Water Quality

The proposed BMPs for the project will address site design, source control, and natural and structural treatment to protect water quality and reduce erosion to the maximum extent possible (MEP). The project design, proposed structural treatment control BMPs, including the vegetative bio-filters and Rigid PVC on-site drainage pipes, and source control BMPs provide a contaminant and infiltration system to negate the project impacts.

4.1 Construction BMPs

Included in the grading plans are a list of erosion control measures, siltation and sediment control measures, and stormwater protection notes.

The developer is proposing to use BMPs during the construction phase. All BMPs shall be installed or placed in accordance with the current design standards, to prevent any pollutants from exiting the proposed development to the maximum extent practicable. At a minimum, the plans have incorporated EC-7, TR-1, and SE-8 (see list below). Other CASQA BMPs for construction activities may be necessary depending on the time of year that construction begins. The following BMPs shall be used as necessary:

Minimum BMPs:
EC-7: Geotexiles, Mats/Plastic Covers and Erosion Control Blankets
TR-1: Stabilized Construction Entrance
SE-8: Sand Bag Barrier

Possible BMPs:
NS-2: Dewatering Operations
NS-3: Paving and Grinding Operations
WM-1: Material Delivery and Storage
WM-4: Spill Prevention and Control
WM-3: Stockpile Management
WM-5: Solid Waste Management
WM-8: Concrete Waste Management
WM-9: Sanitary/Septic Waste Management
NS-8: Vehicle and Equipment Cleaning
NS-9: Vehicle and Equipment Fueling
NS-10: Vehicle and Equipment Maintenance
EC-2: Preservation of Existing Vegetation

EC-4: Hydroseeding
EC-6: Mulching
EC-5: Soil Binders
TR-2: Stabilized Construction Roadway
EC-9: Earth Dikes and Drainage Swales
EC-10:Velocity Dissipation Devices
SE-1: Silt Fences
SE-5: Fiber Rolls
SE-7: Street Sweeping and Vacuuming

The detail for each of the above-listed BMPs is included in the California Stormwater Quality Association (CASQA) construction handbook (www.cabmphandbooks.com/construction.asp).

4.2 Post-construction BMPs

Pollutants of concern, as noted in Section 1.2 will be addressed through three types of BMPs. These types of BMPs are site design, source control, and treatment control.

4.2.1 Site Design BMPs

The proposed project is for the construction of an assisted living facility for the elderly. The construction area is approximately two acres. There is no impervious area on-site before construction. After construction, the total impervious area will be 39,572 square feet. The proposed project will convert approximately 45% of the site into hard surface.

The entrance to the site will be from the southeastern corner of the site, off of South Mission Road. As proposed, the project will have landscaped plantings, including irrigation, on all slopes and common areas. The varieties of native and indigenous trees and shrubbery will result is the reduction of stormwater velocity, as well as filter potential stormwater pollutants. These vegetated areas will reduce stormwater velocities as well as increase infiltration.

4.2.2 Source Control BMPs

All storm drain inlets and catch basins within the project area will be identified with signs containing prohibitive language to discourage illegal dumping, such as: "No dumping – I live in the San Luis Rey Watershed."

Trash enclosures will be utilized to help keep trash and debris from entering the stormwater.

An informational package will be produced and disseminated to new tenants to educate them on the many ways they can help keep our waters clean. An example of this literature is attached in Appendix C.

4.2.3 Treatment Control BMPs

Onsite drainage will be directed easterly/southeasterly via sheet flow and Rigid Class PVC drainage pipes along the base of the northern and western slopes and diverted into grassy vegetated drainage swales to reduce stormwater velocities to allow for pollutants to dissipate into the vegetation.

The following treatment control BMPs will be implemented to address water quality:

- Rigid Class PVC 200 Drainage Pipes
- Grassy Vegetated Swales

4.2.3.1 Drainage Swales (Rigid Class PVC 200 Drainage Pipes)

A drainage swale is a shaped and sloped depression in the soil surface used to convey runoff to a desired location. Drainage swales are suitable for use where runoff needs to be diverted from one area and conveyed to another.

Drainage swales may be used to convey surface runoff down sloping land, to intercept and divert runoff to avoid sheet flow over sloped surfaces, to divert and direct runoff towards a stabilized watercourse, drainage pipe or channel, and to intercept runoff from paved surfaces, below steep grades where runoff begins to concentrate.

4.2.3.2 Grassy Vegetated Swales

Grassy vegetated swales are open, shallow channels with vegetation covering the side slopes and bottom that collect and slowly convey runoff flow to downstream discharge points. They are designed to treat runoff through filtering water through vegetation in the channel or subsoil matrix. Vegetated swales trap particulate pollutant, promote infiltration, and reduce the flow of stormwater runoff.

Velocity Dissipation Devices may be used as part of a stormwater drainage system and can replace curbs, gutters and storm sewer systems.

5.0 Operations and Maintenance Program

The project owner is responsible for maintenance of the BMPs. Failure to properly install or maintain the BMPs may result in enforcement action by the County of San Diego or others. If installed BMPs fail, repair or replacement with an acceptable alternate must be completed within 24 hours, or as soon as safe to do so.

The operation and maintenance requirements for each type of BMP is as follows:

5.1 Hydroseed the Cut Areas

The operation and maintenance needs of hydroseeded cut areas are:

- Vegetation management to maintain adequate hydraulic functioning and to limit habitat for disease-carrying animals.
- Animal and vector control.
- Scheduled inspections for vegetation stability and prosperity.
- Scheduled maintenance of hydroseeded areas; this is to include rehydroseeding any areas that are barren or where vegetation has deteriorated.

Inspection Frequency

- Once a month, or as needed.
- Grass height and mowing frequency may not have a large impact on pollutant removal. Consequently, mowing may only be necessary once or twice a year for safety or aesthetics, or to suppress weeds and woody vegetation.

Aesthetic and Functional Maintenance

Aesthetic maintenance is important for public acceptance of stormwater facilities. Functional maintenance is important for performance and safety reasons.

Both forms of maintenance will be combined into an overall Stormwater Management Maintenance System.

The following activities will be included in the aesthetic maintenance programs:

- Graffiti removal – Graffiti will be removed in a timely manner to improve the appearance of the hydroseeded areas and to discourage additional graffiti or other acts of vandalism.

Functional maintenance has two components, preventative and corrective. The preventative maintenance activities to be instituted for hydroseeded areas include:

- Trash and Debris Removal – Trash and debris accumulation will be monitored once a month during rainy and non-rainy seasons, as well as after every large storm event. Trash and debris will be removed twice yearly, or as needed.
- Sediment Removal – Sediment accumulation will be monitored once a month during rainy and non-rainy seasons, as well as after every large storm event. Sediment will be removed twice yearly, or as needed. All captured materials will be disposed of in a County authorized disposal facility or location.
- Elimination of Mosquito Breeding Habitats- The most effective mosquito control program is one that eliminates potential breeding habitats.

Subdivision Public Report: Tentative Map and Tentative Parcel Map approvals will be conditioned to require that, prior to approval of a Final or Parcel Map, the subdivider shall provide evidence to the Director of Public Works, that the subdivider has requested the California Department of Real Estate to include in the public report to be issued for the sales of lots within the subdivision, a notification regarding the maintenance requirement. (The requirement for this condition would not be applicable to subdivisions which are exempt from regulation under the Subdivided Lands Act, or for which no public report will be issued.)

5.1.2 Funding:

No funding required.

5.2 Vegetated Drainage Swales

The operation and maintenance needs of vegetated drainage swales are:

- Install swales at the time of the year when there is a reasonable chance of successful establishment without irrigation; however, it is recognized that rainfall in a given year may not be sufficient and temporary irrigation may be used.
- Animal and vector control.
- Scheduled inspections for slope and vegetation stability and prosperity.
- Scheduled maintenance vegetated drainage swales; this is to include reseeding any areas that are barren or where vegetation has deteriorated.

Inspection Frequency

- Once during the wet season and once during the dry season (depending on growth).
- Grass height and mowing frequency may not have a large impact on pollutant removal.
- Consequently, mowing may only be necessary once or twice a year for safety or aesthetics, or to suppress weeds and woody vegetation.

Aesthetic and Functional Maintenance

Aesthetic maintenance is important for public acceptance of stormwater facilities. Functional maintenance is important for performance and safety reasons.

Both forms of maintenance will be combined into an overall Stormwater Management Maintenance System.

The following activities will be included in the aesthetic maintenance programs:

- Graffiti removal – Graffiti will be removed in a timely manner to improve the appearance of the vegetated drainage swale areas and to discourage additional graffiti or other acts of vandalism.

Functional maintenance has two components, preventative and corrective. The preventative maintenance activities to be instituted for swale areas include:

- Trash and Debris Removal – Trash and debris accumulation will be monitored once a month during rainy and non-rainy seasons, as well as after every large storm event. Trash and debris will be removed twice yearly, or as needed.
- Sediment Removal – Sediment accumulation will be monitored annually. Sediment will be removed if flow is channeled, if sediment becomes deep enough to change flow gradiant, or as needed. All captured materials will be disposed of in a County authorized disposal facility or location.
- Elimination of Mosquito Breeding Habitats- The most effective mosquito control program is one that eliminates potential breeding habitats.

Corrective maintenance is required on an emergency or non-routine basis to correct problems and to restore the intended operation and safe function of the swale areas. Corrective maintenance activities include:

- Removal of Debris and Sediment – Sediment, debris, and trash that may impede the functioning of the swale areas will be removed and properly disposed. Temporary arrangements will be made for handling the sediments until a permanent arrangement is made.
- Reseeding Barren Areas – Once deemed necessary, rehydroseeding of barren areas will be done within 30 working days.
- Erosion Repair – Where factors have created erosive conditions (i.e. pedestrian traffic, concentrated flow, etc.) corrective steps will be taken to prevent loss of soil and any subsequent danger to the performance or stability of the swale areas. There are a number of corrective actions that can be taken, including erosion control blankets, additional rip-rap, or reduced flow through the area. Designers or contractors will be consulted to address erosion problems if the solution is not evident.

5.2.1 Determination of Appropriate Maintenance Mechanisms

The vegetated drainage swales areas are classified as "First Category" BMPs, where "the County should have only minimal concern for ongoing maintenance. The proposed BMPs inherently 'take care of themselves', or property owners can naturally be expected to do so as an incident of taking care of their property."

Mechanisms to assure maintenance for First Category BMPs include:

Stormwater Ordinance Requirement: The County of San Diego Watershed Protection, Stormwater Management, and Discharge Control Ordinance (S.O.) requires this ongoing maintenance. In the event that the mechanisms below prove ineffective, or in addition to enforcing those mechanisms, civil action, criminal action or administrative citation could also be pursued for violations of the ordinance.
Public Nuisance Abatement: Under the S.O., failure to maintain a BMP would constitute a public nuisance, which may be abated under the Uniform Public Nuisance Abatement

Procedure. This provides an enforcement mechanism additional to the above, and would allow costs of maintenance to be billed to the owner, a lien placed on the property, and the tax collection process to be used.

Notice to Purchasers: Section 67.819(e) of the S.O. requires developers to provide clear written notification to persons acquiring land upon which a BMP is located, or others assuming a BMP maintenance obligation, of the maintenance duty.

Conditions in Ongoing Land Use Permits: For those applications (listed in S.O. Section 67.804) upon whose approval of ongoing conditions may be imposed, a condition will be added which requires the owner of the land upon which the stormwater facility is located to maintain that facility in accordance with the requirements specified in the SWMP. Failure to perform maintenance may then be addressed as a violation of the permit, under the ordinance governing that permit process.

Subdivision Public Report: Tentative Map and Tentative Parcel Map approvals will be conditioned to require that, prior to approval of a Final or Parcel Map, the subdivider shall provide evidence to the Director of Public Works, that the subdivider has requested the California Department of Real Estate to include in the public report to be issued for the sales of lots within the subdivision, a notification regarding the maintenance requirement. (The requirement for this condition would not be applicable to subdivisions which are exempt from regulation under the Subdivided Lands Act, or for which no public report will be issued.)

5.2.2 Funding

No funding required.

5.2 Disposing of Sediments and Collection of Pollutants

As proposed, the BMPs will result in a limited amount of sediments and pollutants being removed from the property. The drainage swale and rip rap will reduce velocity and erosion potential to existing vegetation.

5.4 Monitoring of BMPs and County Compliance Inspections

The project owner will be responsible for monitoring the stormwater control system. The owner will establish a training procedure for new ~~homeowners~~ so that they can make routine inspections of the BMPs. County Inspectors will be allowed to inspect the stormwater system, without notice and on an as-needed basis.

5.5 Thresholds for Maintenance

The project owner or their representative should be responsible for inspecting the stormwater control system after any rainfall that exceeds 0.5 inches of rain in a 24-hour period. At a minimum, an inspection should occur at least twice in a six-month period, or as required by the manufacture of any control devices.

6.0 Fiscal Resources

The financial responsibility for the proposed mitigation measures will be provided by the developer, during and immediately after the construction, but will ultimately be passed on to the individuals who purchase the residences. The maintenance of the BMPs will be included and financed through the homeowner's association agreements.

7.0 Summary of Maintenance Costs per Responsible Party

BMP	Responsible Party	Cost	Cost Basis
Hydroseeded Areas	Homeowner's Association	$0.25/square foot to replace	As needed
BioFilter-Swales	Homeowner's Association/Owner	$751.76/for materials	As needed

8.0 PROGRAM EVALUATION

Inspection by the owners or public officials would involve the visual inspection of all culverts, pipes, drains, filters, and rip-rap areas. They would be looking to make sure all facilities are in a good state of operation, without damage to any of the BMPs in place and to ensure they are functioning properly.

9.0 CONCLUSION

The proposed TM can be built to be in compliance with the County's Guidelines for a Stormwater Management and Maintenance Plan. This analysis provides for post-construction stormwater protection and ensures that the proposed Best Management Practices (BMPs) are effective with proper maintenance and long-term fiscal responsibility. The site design, source control, and structural BMPs have been designed to control the stormwater flow and to detain the water on the property to the maximum extent practicable.

The site design and structural treatment controls will contain rainfall on the property for low and moderate storms to reduce pollutants from leaving the site. Site design includes landscaped plantings, including irrigation, on all slopes and common areas. The source controls include: educational materials and signage, which will be used to deter and prevent future residents from adding pollutants to the water, as well as the proposed trash storage area, which will help keep trash and debris from entering the stormwater. Further structural treatment BMPs include the Rigid Class PVC drainage pipes along the base of the northern and western slopes and diverted into grassy vegetated drainage swales to reduce stormwater velocities to allow for pollutants to dissipate into the vegetation.

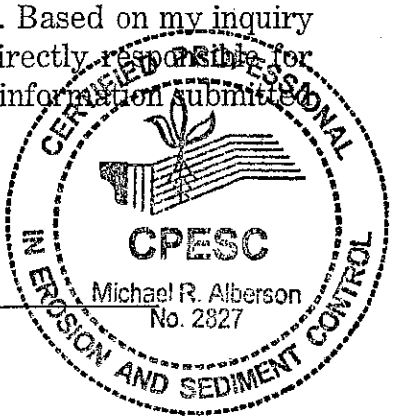
For these reasons, it is believed that these proposed BMPs will reduce potential pollutants to the Maximum Extent Practicable. In addition, when stormwater does leave the site it will be during periods of maximum flow and volume, which means that any pollutants that ~~due~~ occur

would be diluted to the maximum extent, resulting in less than significant impact to receiving waters and impaired water bodies in the Santa Margarita Watershed.

10.0 CERTIFICATION

Report Preparation

I certify under a penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete.



EILAR ASSOCIATES

Michael Alberson, CPESC No. 2827
Senior Environmental Analyst
Phone 760-753-1865
Fax 760-753-2597

6/6/05
Date

Permit Applicant

The Permit Applicant certifies that the BMPs proposed to support the permit application will be installed, monitored, maintained, or revised as appropriate, to ensure continued effectiveness.

Karl or Barbara Zinner
Care of: Tom Edgemon
A-Advantage Home Care
P.O Box 1219
Puma Valley, California 92061
Phone: 760-742-3111

06.06.05
Date

MAILED & UPDATED 5/8

Skyline Engineering
1220 S. Ditmar St.
Oceanside, California 92054
760-722-1520

11.0 REFERENCES

California Department of Transportation, *Storm Water Quality Handbooks, Construction Site, Best Management Practices (BMP's) Manual*, November 2000.

California Environmental Quality Act (CEQA), Public Resources Code Division 13, Sections 21000 *et. seq.*; Guidelines for the California Environmental Quality Act (CEQA), California Code of Regulations Tile 14, Chapter 3, Sections 15000-215387.

Caltrans *Storm Water Quality Handbook, Construction Contractor's Guide and Specifications*, April 1997.

County of San Diego Department of Public Works Land Development Guidelines, Stormwater Maintenance Plan, February 20, 2002 (Draft).

County of San Diego Department of Public Works Land Development Guideline, Stormwater Management Plan, February 20, 2002.

County of San Diego *Stormwater Standards Manual* and the *County of San Diego Watershed Protection, Stormwater Management, and Discharge Control Ordinance*, Number 9424 (N.S.).

County of San Diego *Stormwater Standards Manual*, Appendix A, Section G.

County of San Diego, Ordinance No. 9426 and An Ordinance Amending the Code of Regulatory Ordinances Relating to the Addition of the Stormwater Standards Manual.

Model Standard Urban Storm Water Mitigation Plan for San Diego County, Port of San Diego, and Cites in San Diego County, City of San Diego Storm Water Program, November 19, 2001.

Porter-Cologne Water Quality Control Act of 1969.

San Diego Stormwater Copermittees; Jurisdictional Urban Runoff Management Program (URMP); Existing Residential Areas; Model Program Guidance; September 19, 2001.

Soil Survey, San Diego Area California, United States Department of Agriculture, December 1973.

Urban Storm Water Runoff: Pollution Problems and NPDES Storm Water Permits; California Regional Water Quality Control Board, San Diego Region, September 12, 1994.

Water Quality Control Plan for the San Diego Basin Region 9, September 8, 1994.

Selection of treatment control BMP's

The SUSMP state that projects shall be designed to remove pollutants of concern from the storm water conveyance system to the MEP through the incorporation of treatment control BMP's. Treatment control BMP's must be implemented unless, a waiver is granted to the project by the City Engineer, which indicates the lack of feasible treatment control BMP.

To select a treatment control BMP, using the treatment Control BMP selection matrix, table 2 Page 11 of County SWMP. Each priority project shall compare the list of pollutants for which the downstream receiving waters are impaired, if any, with the pollutants anticipated to be generated by the project. Any identified pollutants that are also causing a CWA section 303(d) impairment of the receiving waters of the project shall be considered a Primary pollutant of concern. Priority project that are anticipated to generate a Primary pollutant of concern shall meet all the applicable requirements as indicated in the SUSMP, and shall select a single or combination of storm water BMP's, which maximizes pollutant removal for the particular primary pollutant of concern. Primary pollutants of concern will receive priority for BMP selection.

Priority projects shall be designed to remove pollutants of concern from the storm water conveyance system to the MEP through the use of treatment control BMP's. The selection process also requires the comparison of the list of pollutants for which the downstream receiving waters are impaired, with the anticipated pollutants generated by land use. Refer to table 1, page #5 of the county SWMP. Anticipated and potential pollutants generated by land use type. Identification of pollutants of concern, for a complete list of primary and secondary pollutants of concern. Where a site generates primary and secondary pollutants of concern, the primary pollutants of concern shall receive priority for BMP selection. The SUSMP provides treatment control BMP selection matrix table 2, as a reference in determining the appropriate treatment control BMP(s)

The primary pollutants of concern, as determined in this report, are as follows:

Bacteria

Secondary pollutants of concern, as determined in this report, are as follows:

Chloride & total dissolved solids

The process of selecting treatment control BMP's is based upon previously mentioned factors such as identification of POC's and the effectiveness of the BMP on the targeted pollutant(s).

The County gardens II projects employs a combination of vegetated areas and swales that perform as Bio-filters. To a minor extent they provide for infiltration and decantation or sediment removal and will also help to attenuate or slow down the flow.

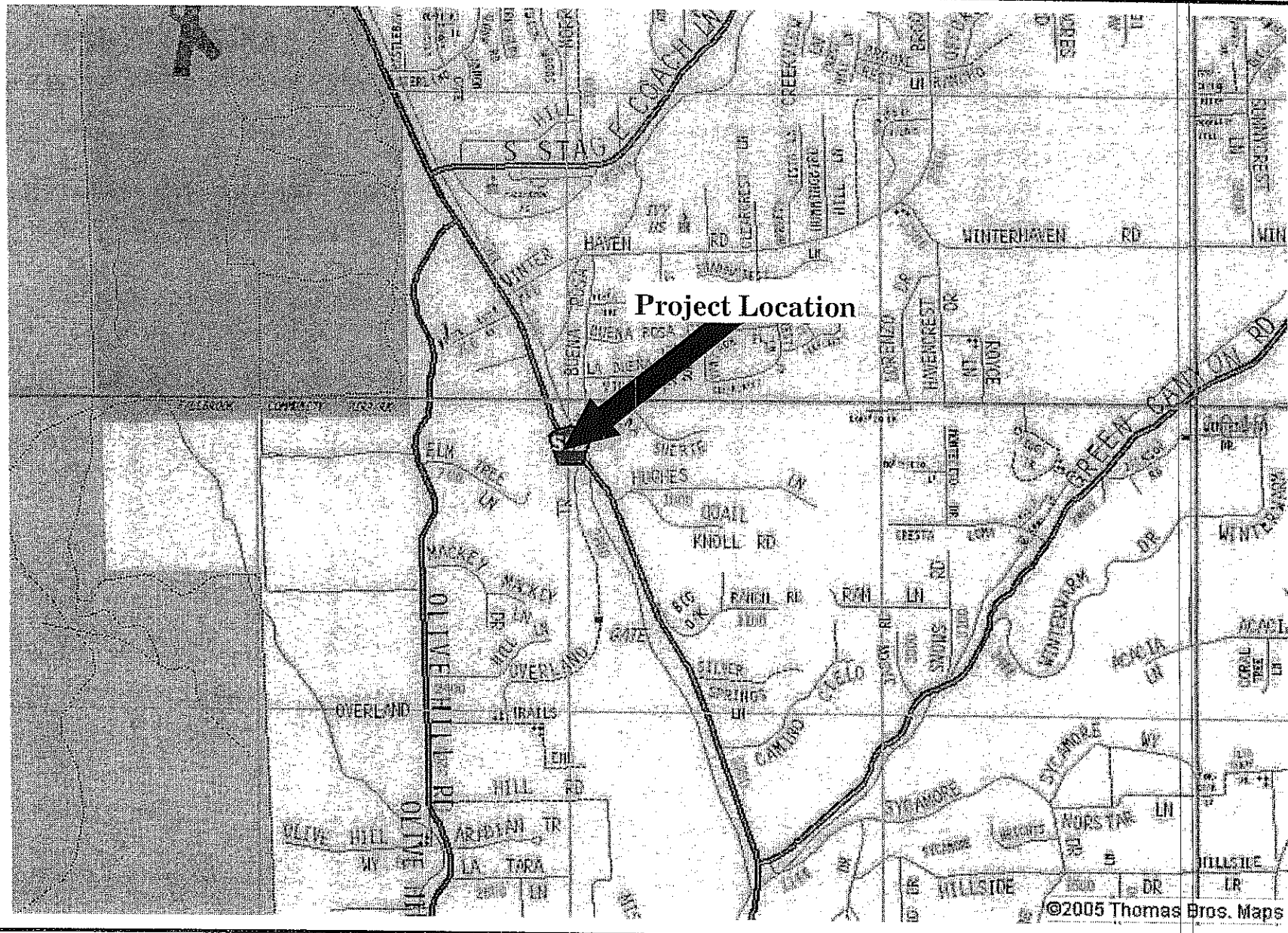
The Bio-swale is cited as performing limited infiltration and decantation because it does not meet the numeric sizing volume criteria found in section in the SUSUMP. A study was performed to determine the treatment volume required. Calculations were performed using the prescribed SUSMP volume calculations. It requires that the 85th percentile run-off flow be used or as an alternate use a flow of .2 inches of rain per hour. The effects on the special landscaped bio-swale were calculated see the hydrology study. The residence time will be about 15 minutes. Please see the enclosed hydraulic calculations. ~~Drain inserts will also be used~~. Good design practice dictates that biofilters have flows less then 4" deep, have a velocity of less then 1 foot per second and have a minimum retention time of 10 minutes. The proposed biofilter meets these design standards.

The selection of the bio-swale, at the front of the property, treatment BMP's is based upon the physical constraints of the property.

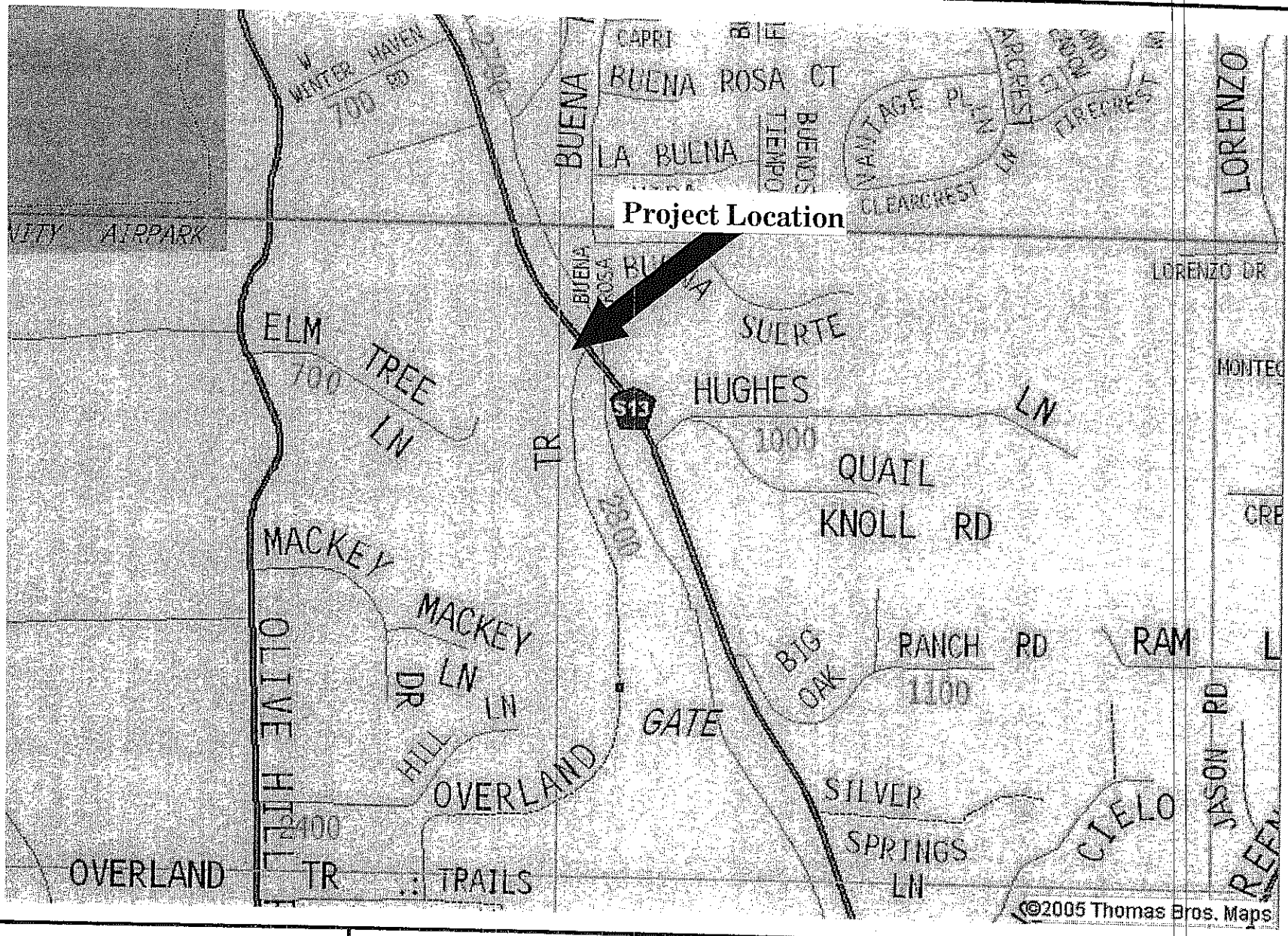
Figure 2 also identifies detention basins, infiltration basins, wet ponds or wetland, and filtration as an acceptable treatment BMP's for the POC's. Basin wetland ponds and filtration BMP's generally require large relatively level areas to perform their assigned function. The limited area of the site does not allow for the practical application of these type of BMP's.

The primary pollutant of concern for the downstream receiving waters is bacteria. It is not anticipated that bacteria will be generated at the site. Table 2 shows that bacteria is a "potential" pollutant from the site. ~~The proposed drain inserts provide only a low efficiency at removing bacteria~~. As a result we require that the property owner provide for annual testing of the run-off for bacteria. If bacteria is discovered in the runoff corrective action must be taken to eliminate the bacteria.

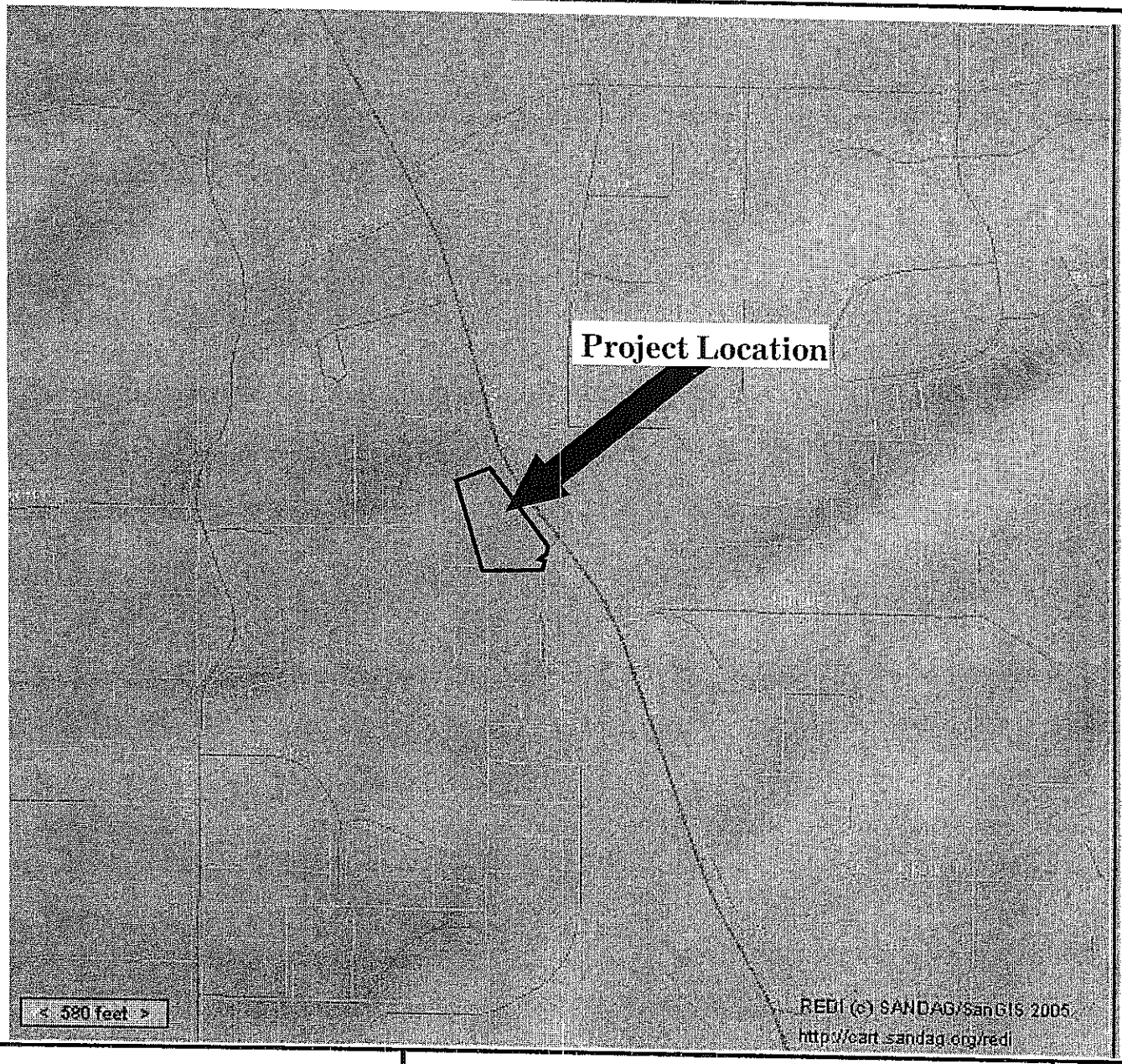
A comparison between the efficiency of the treatment control BMP's, as listed in figure 1, and the pollutant priority (None, per section 4.1)of the impaired receiving waters indicate the selected treatment control BMP efficiently is equal to or exceeds the impaired water pollutant priority.



Eilar Associates **539 Encinitas Boulevard, Suite 206** **Encinitas, California 92024** **760-753-1865**	**Regional Map** **Project #A50331W1**	**Figure 1**



Eilar Associates **539 Encinitas Boulevard, Suite 206** **Encinitas, California 92024** **760-753-1865**	**Thomas Guide** **Project #A50331W1**	**Figure 2**



LEGEND

Reference Layers

Parcels

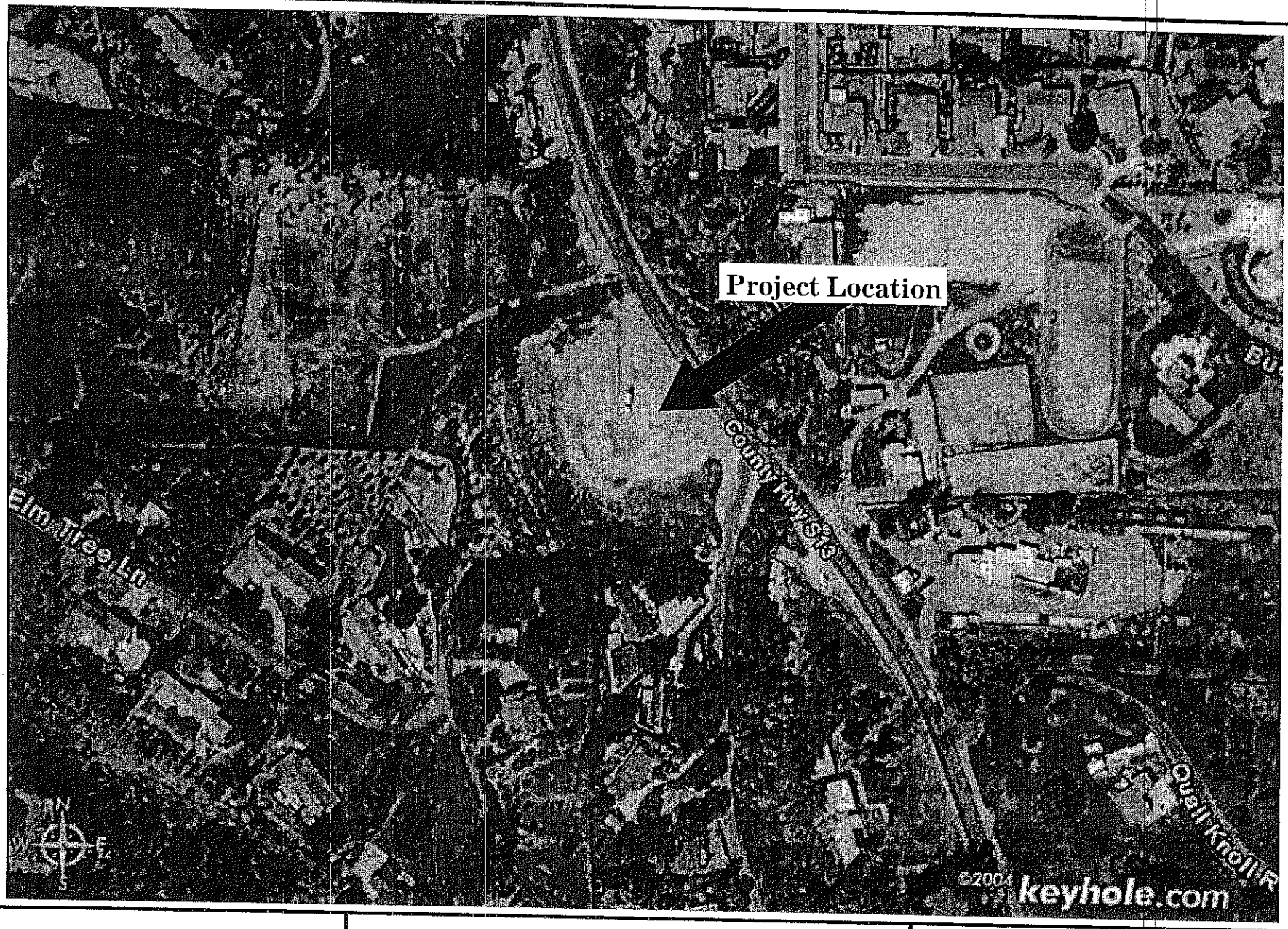
Roads

Assessor's Parcel Number
123-010-52-00

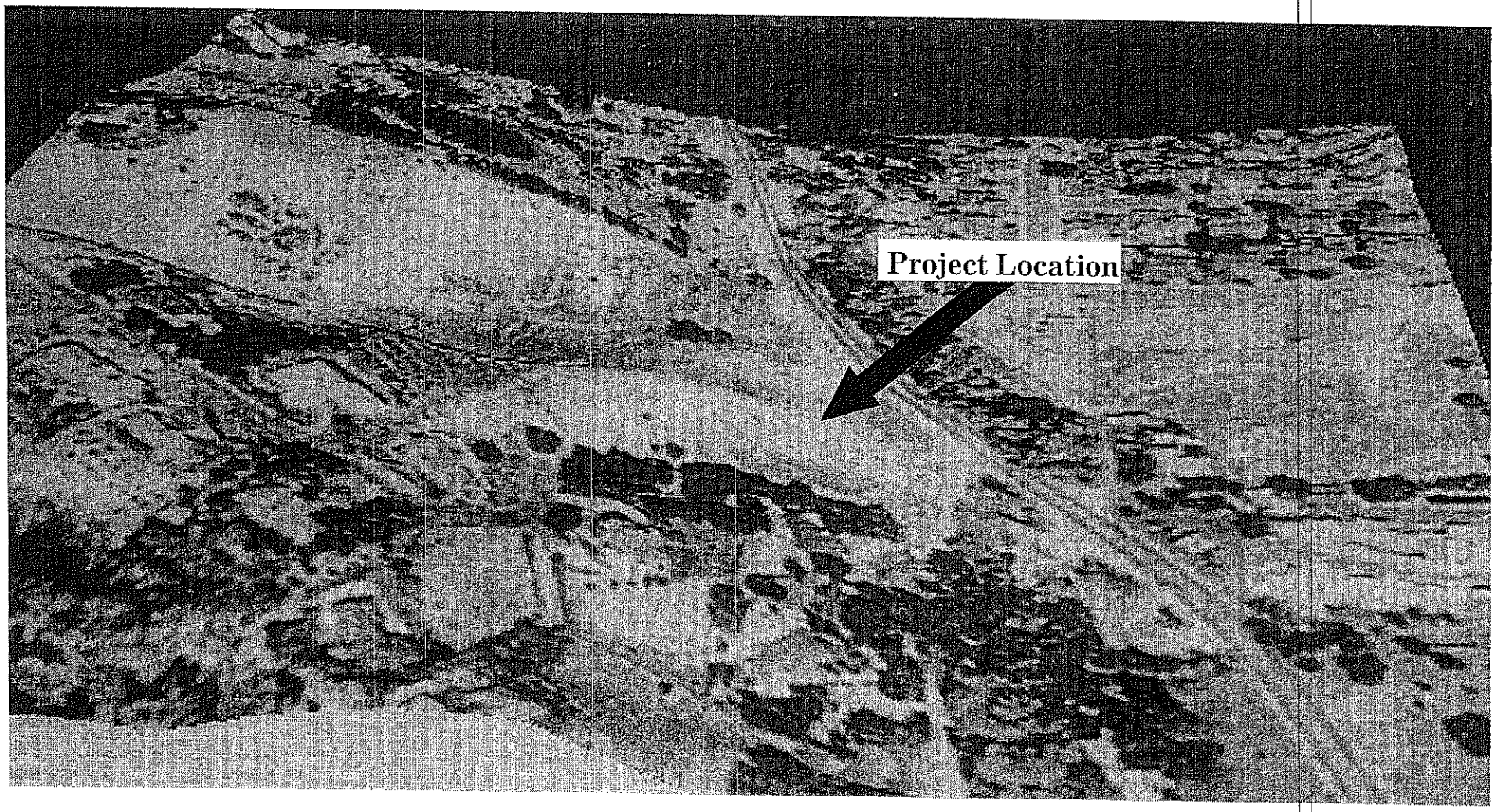
Eilar Associates
539 Encinitas Boulevard, Suite 206
Encinitas, California 92024
760-753-1865

Assessor's Parcel Map
Project #A50331W1

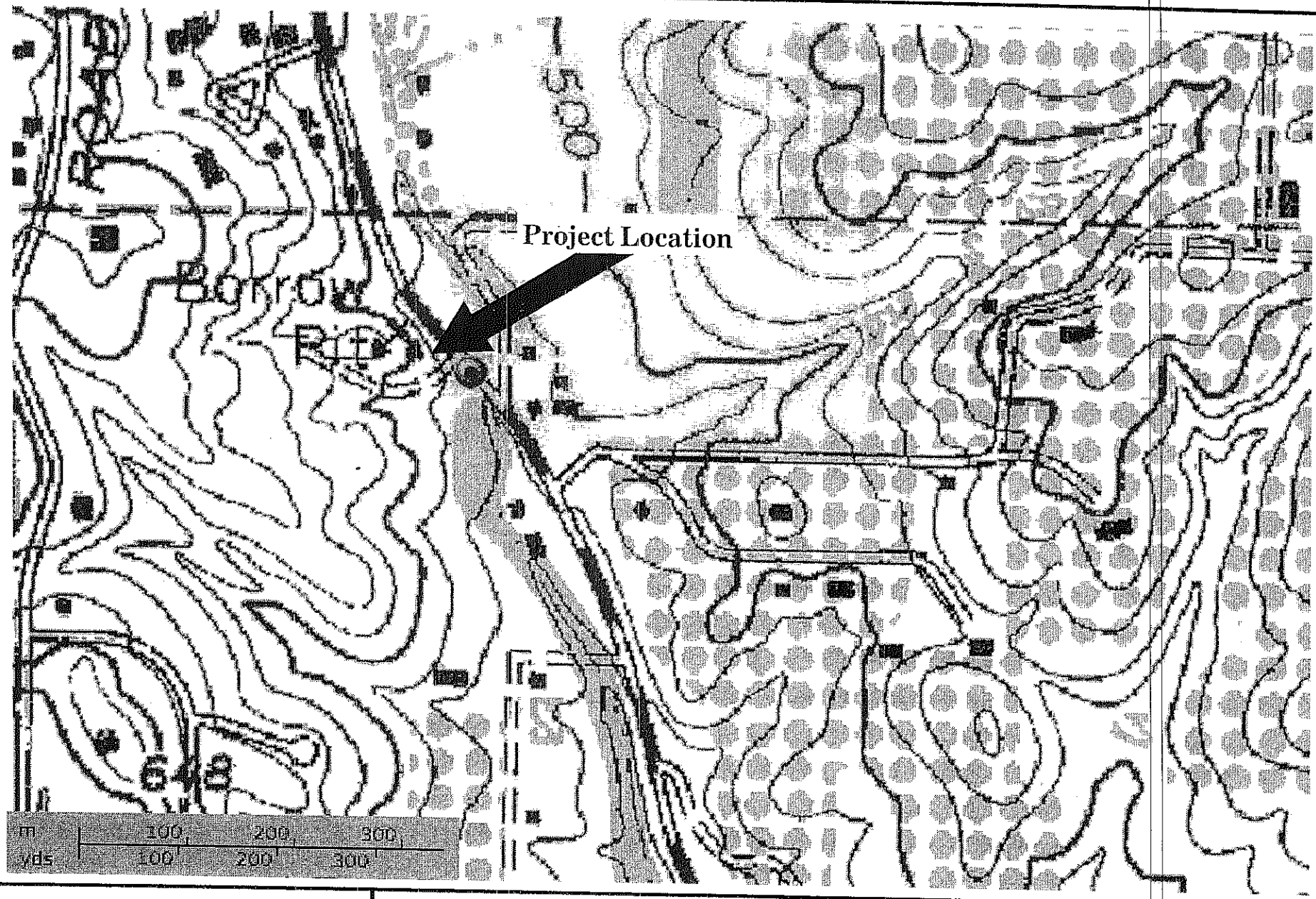
Figure 3



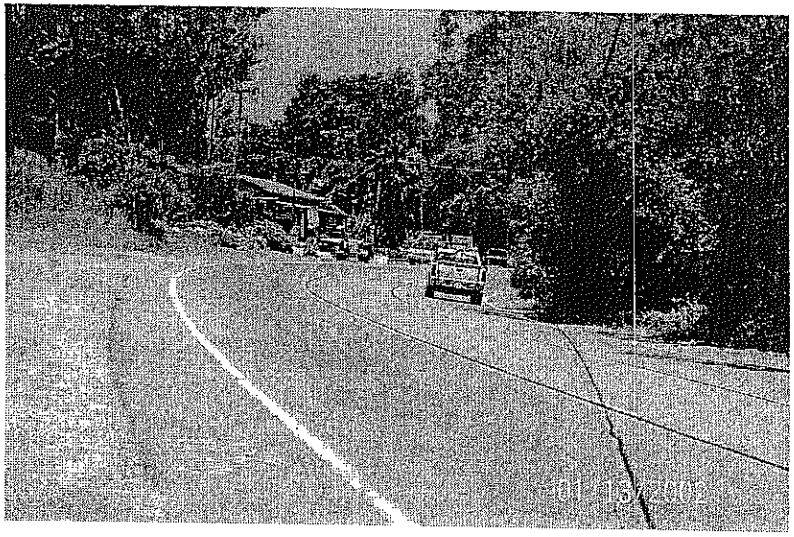
Eilar Associates 539 Encinitas Boulevard, Suite 206 Encinitas, California 92024 760-753-1865	Satellite Aerial Photograph Project #A50331W1	Figure 4

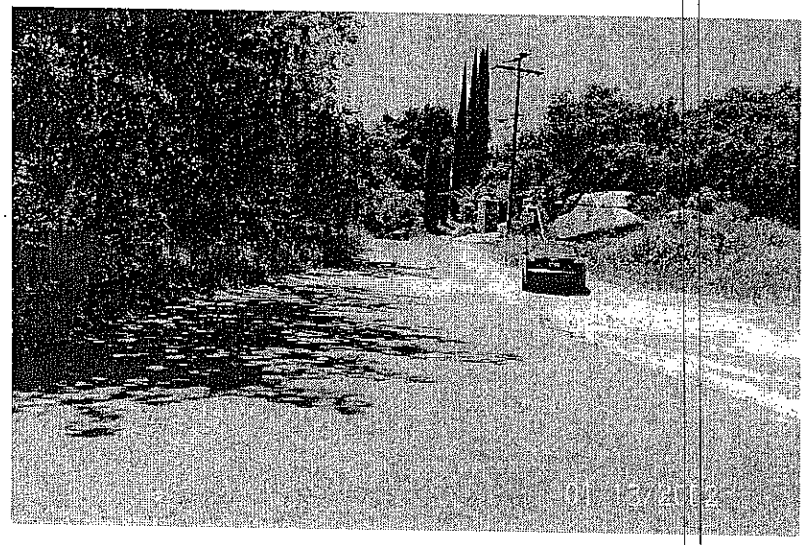


Eilar Associates 539 Encinitas Boulevard, Suite 206 Encinitas, California 92024 760-753-1865	Three-Dimensional Satellite Photograph Project #A50331W1	Figure 5

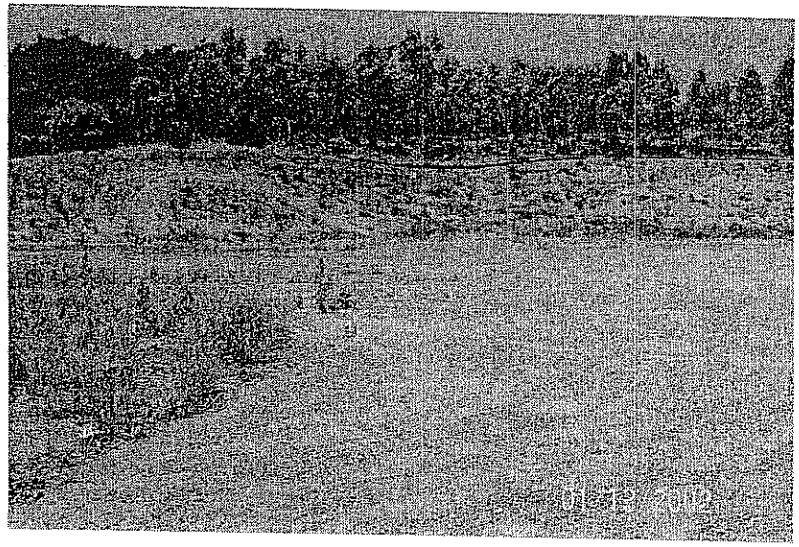


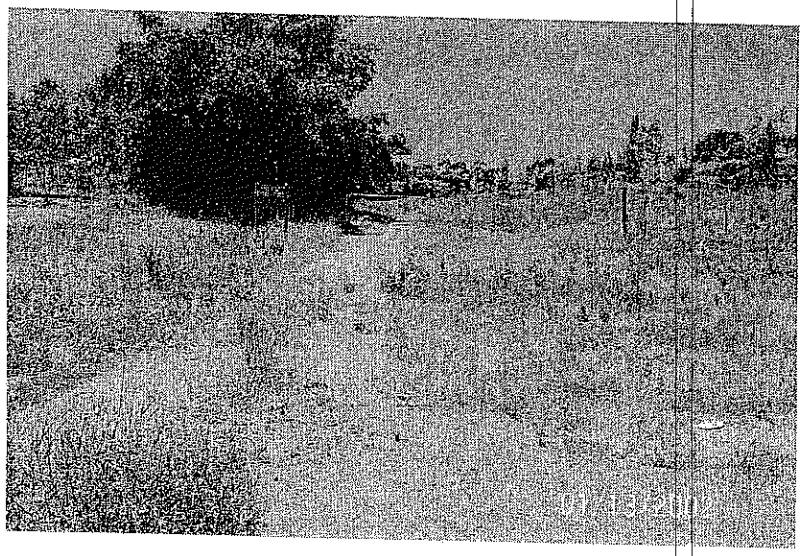
Eilar Associates 539 Encinitas Boulevard, Suite 206 Encinitas, California 92024 760-753-1865	Topographic Map Project #A50331W1	Figure 6

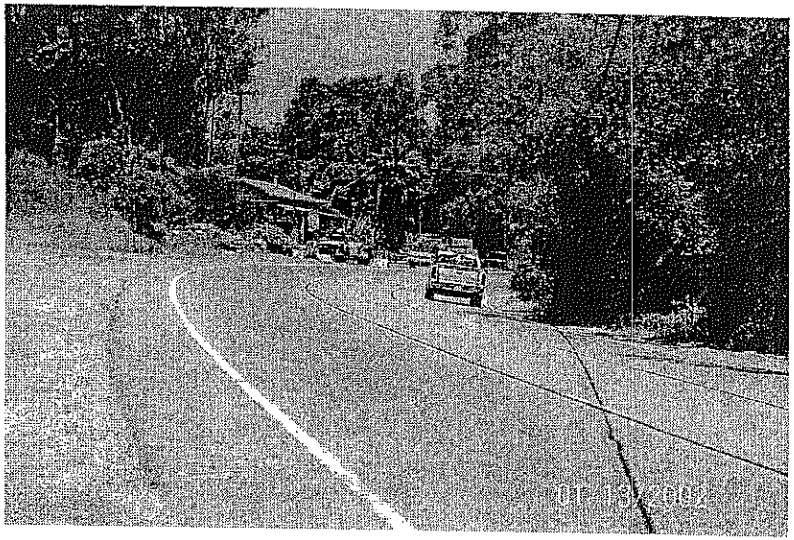


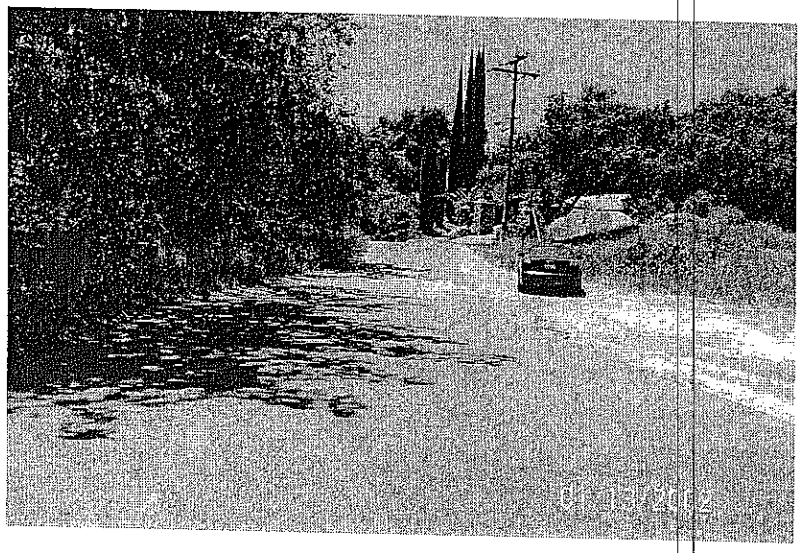


Eilar Associates **539 Encinitas Boulevard, Suite 206** **Encinitas, California 92024** **760-753-1865**	**Site Photographs**	**Figure 7**

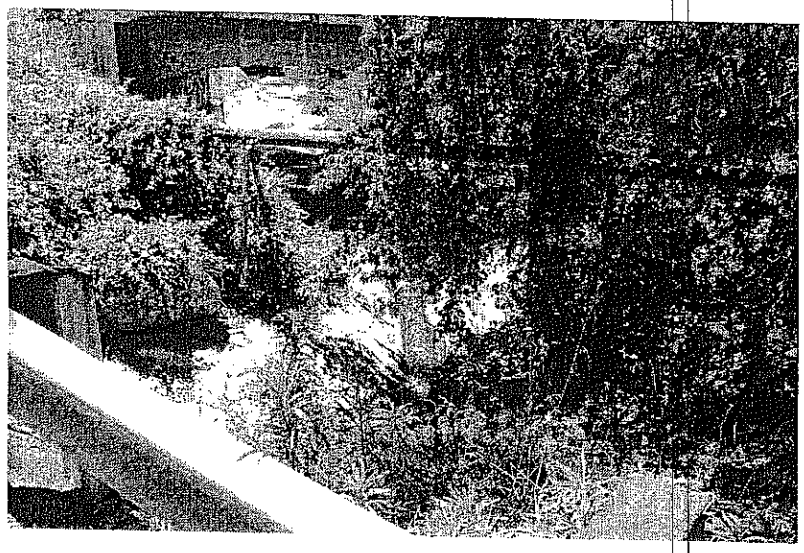


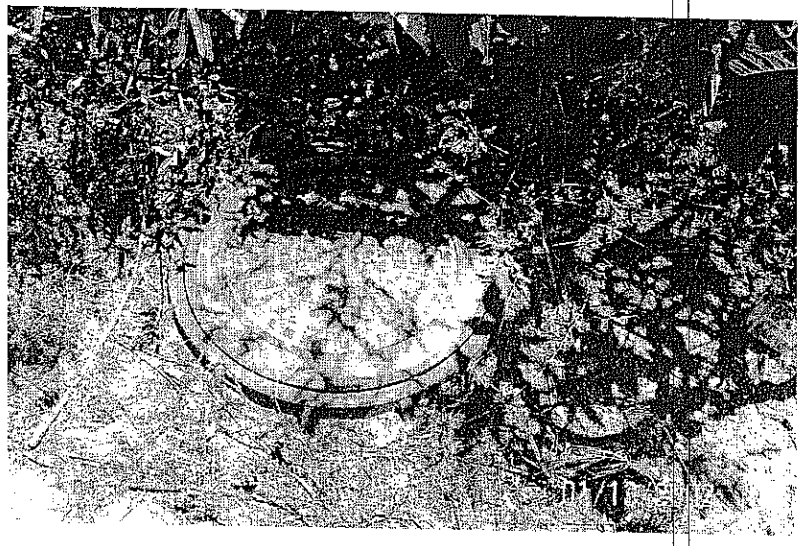




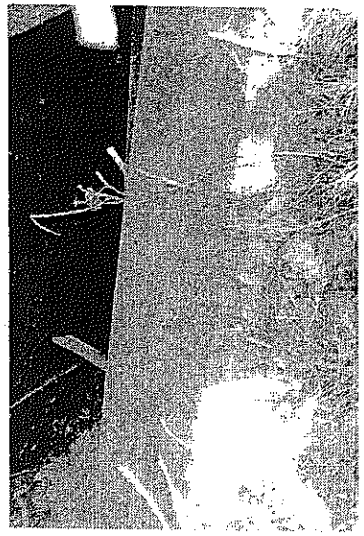


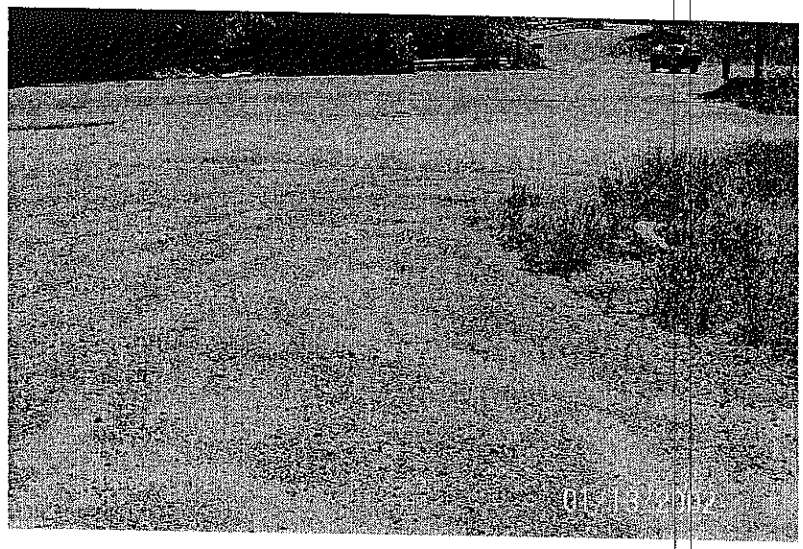
Eilar Associates 539 Encinitas Boulevard, Suite 206 Encinitas, California 92024 760-753-1865	**Site Photographs**	**Figure 8**

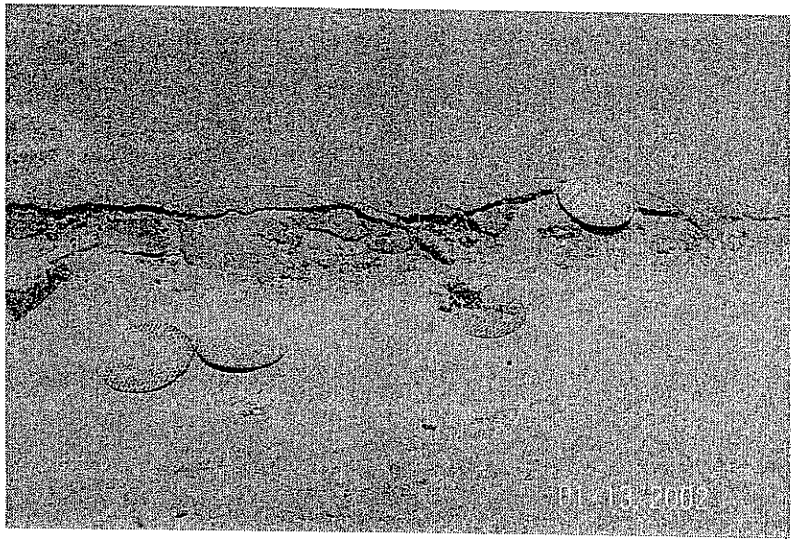




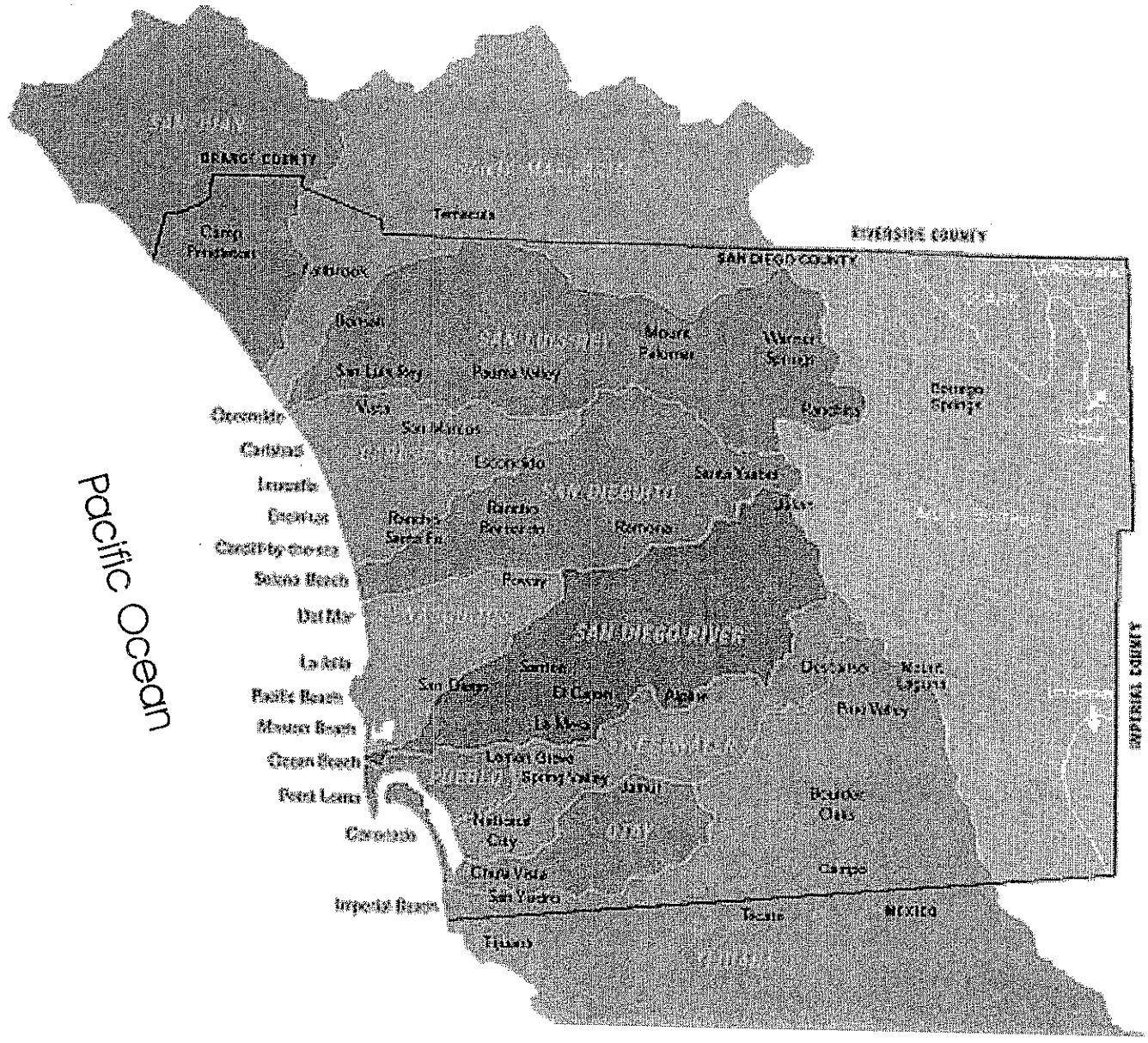
Eilar Associates **539 Encinitas Boulevard, Suite 206** **Encinitas, California 92024** **760-753-1865**	**Site Photographs**	**Figure 9**



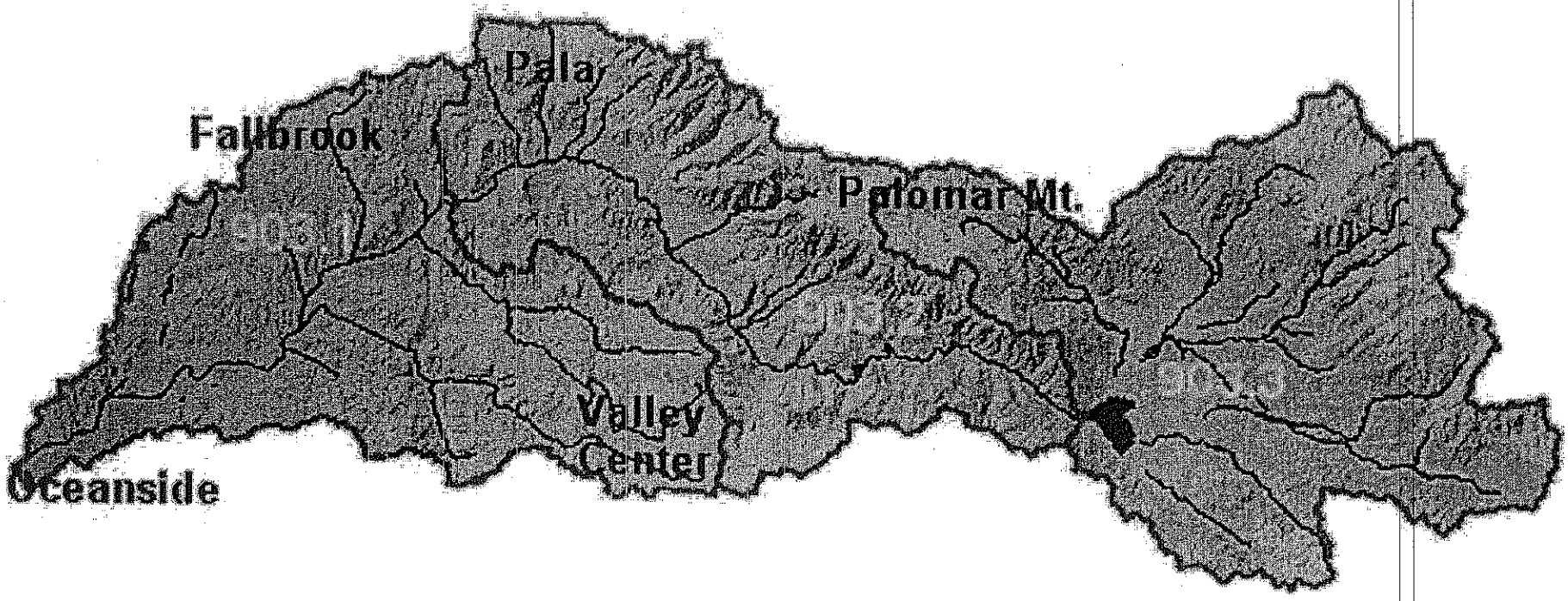




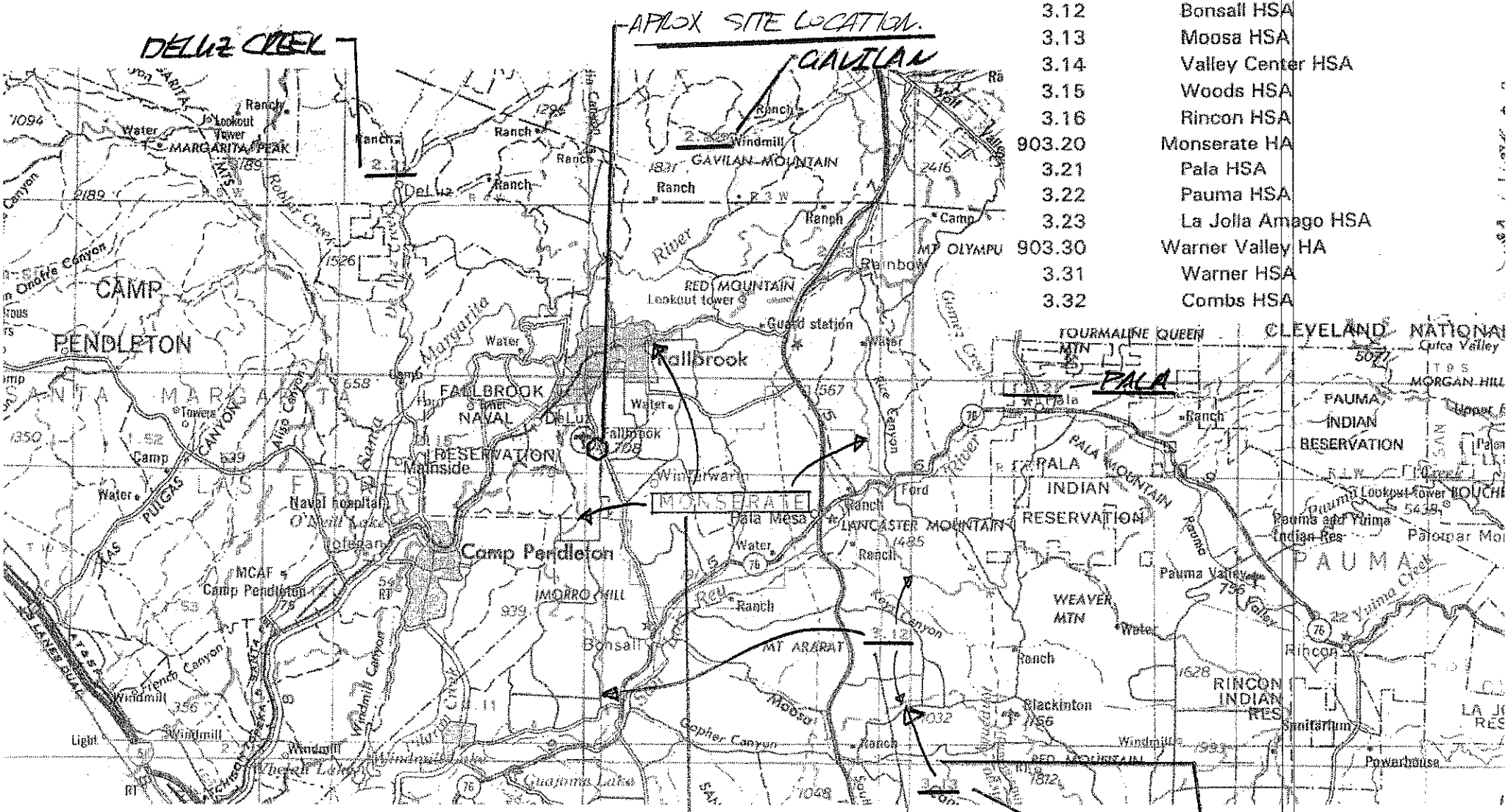
Eilar Associates 539 Encinitas Boulevard, Suite 206 Encinitas, California 92024 760-753-1865	**Site Photographs**	**Figure 10**



Eilar Associates **539 Encinitas Boulevard, Suite 206** **Encinitas, California 92024** **760-753-1865**	**Regional Water Quality Control Board** **San Diego Region (9)** **San Diego Hydrologic Basin Planning Area**	**Figure 12**



Eilar Associates 539 Encinitas Boulevard, Suite 206 Encinitas, California 92024 760-753-1865	San Luis Rey Hydrologic Unit Project #A50331W1	Figure 13



903.00	SAN LUIS REY HYDROLOGIC UNIT
903.10	Lower San Luis HA
3.11	Mission HSA
3.12	Bonsall HSA
3.13	Moosa HSA
3.14	Valley Center HSA
3.15	Woods HSA
3.16	Rincon HSA
903.20	Monserate HA
3.21	Pala HSA
3.22	Pauma HSA
3.23	La Jolla Amago HSA
903.30	Warner Valley HA
3.31	Warner HSA
3.32	Combs HSA

RWQCB - BASIN PLAN MAP
SAN DIEGO REGION (9)

FIGURE 13A

ATTACHMENTS

APPENDIX B

NEW TENANT EDUCATIONAL MATERIALS

Think Blue: Top Tips

Healthy Yards and Healthy Families

Before beginning an outdoor project, locate the nearest storm drain and take action to protect it from debris. This may require you to sweep the gutter between your project and the storm drain, before starting work. Chemicals, fertilizers, herbicides and pesticides can be harmful to you, your family, plant and animal life.

- Use them sparingly. Read labels carefully and don't apply if the forecast calls for rain.
- Use mulch instead of herbicides to prevent weeds from growing and to help absorb water.
- Select drought resistant native plants that conserve water and prevent runoff.
- Don't overwater your lawn. Water during the cooler times of day and don't let it run off into the gutter.
- Drain swimming pools only when chlorine levels are not detected by your swimming pool test kit.
- Keep your gutters in front of your house clean of leaves and grass cuttings. Sweep up debris instead of hosing down your driveway.

Helpful Habits Around the House

- If you use hazardous substances such as paints, solvents and cleaners, use them sparingly, according to directions. Store properly to avoid spilling.
- If you use water-based paints, rinse paint brushes in the sink. For oil-based paints, filter and reuse paint thinner. Dispose of all used paints and materials through a hazardous waste collection program. Never clean brushes or pour paint in the gutter or storm drain.
- If you use other hazardous substances such as cleaners and solvents, properly dispose through a hazardous waste collection program.
- Pick up trash and litter around your yard and home.
- If you're working on a home improvement project, dispose of drywall, concrete and mortar in the trash. Don't rinse concrete or mortar into the street. Sweep up all project debris.
- Pick up pet waste and dispose in the toilet or in a bag for the trash. Bacteria from pet waste contains harmful bacteria that pollutes our waterways. Remember "Scoop the Poop!"

Vehicle and Garage Safety

- Routinely check your car for leaks and keep it tuned up. Car pooling or using a bicycle for transportation helps reduce pollutants on our streets.
- Never pour any chemicals or other hazardous substances from cars down a storm drain, on to the ground or leave on driveways or parking lots.
- When changing fluids from your car, drain into a clean container and seal completely. Take the oil and the oil filter to a used oil collection site.
- If you spill fluids, contain quickly with rags or kitty litter. Safely dispose at a hazardous waste collection site.
- If you wash your own car, use a shutoff nozzle on your hose and use detergents and water sparingly. Wash your car on a landscaped surface.

Important Resources

City of San Diego Household Hazardous Materials Program Information: (619) 235-2111

- Dates and locations of household hazardous waste collections
- Locations for recycling motor oil
- Information on safe use and storage and substitutes for commonly used household products

Poison Control Center: (800) 876-4766
(call 911 in an emergency)

www.Thinkbluesd.org

The CITY OF SAN DIEGO thanks the following partners for their generous support of the Think Blue program:

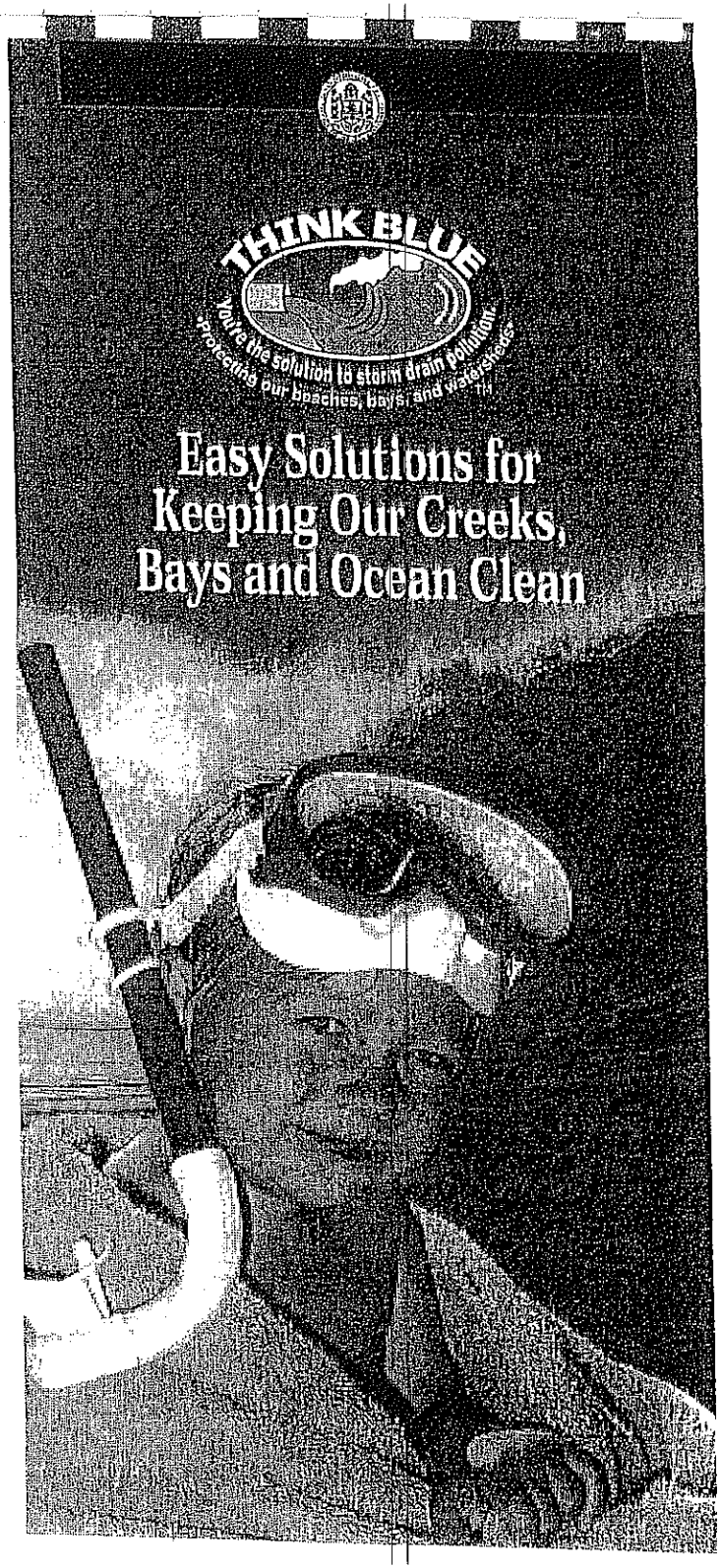
San Diego Port District
Port of San Diego
www.portofsandiego.org

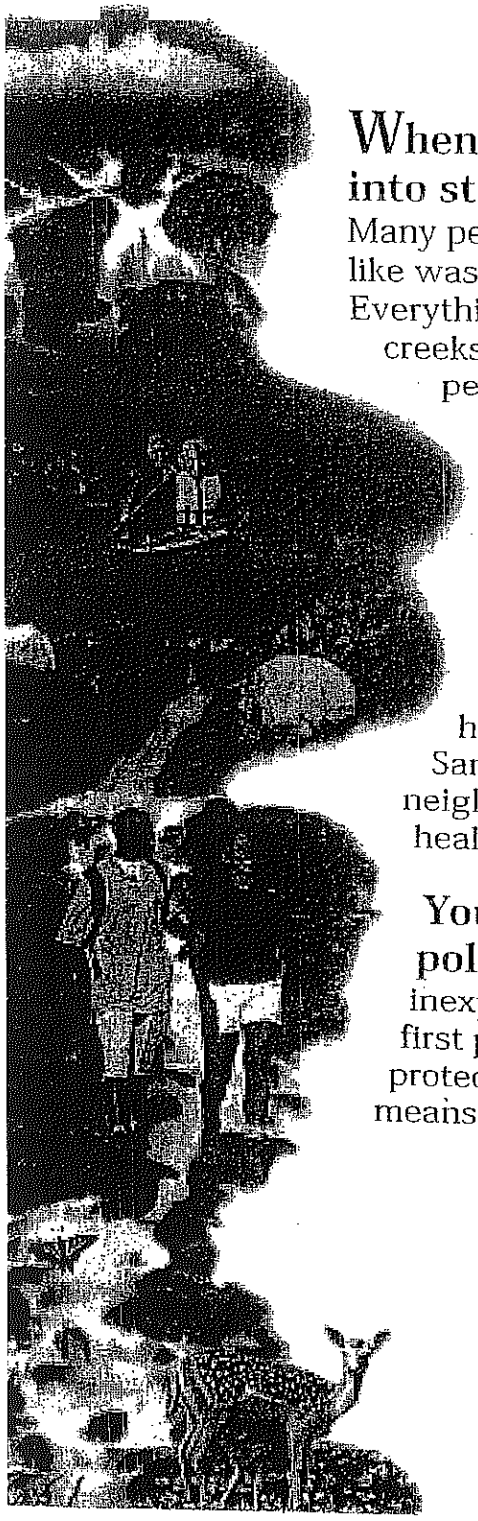
Caltrans

This information will be made available in alternative formats upon request.

Printed on recycled paper.

TP-171 (10/01)





When it rains or when water flows out of yards, it flows directly into storm drains. You've probably seen storm drains on our San Diego streets. Many people think that everything that flows into a storm drain gets treated, just like wastewater in a sewer system, but actually these two systems are *not* connected. Everything that flows down into a storm drain goes *untreated* directly into our creeks, bays, lagoons and ultimately the ocean. Storm water can consist of pesticides, fertilizers, pet waste, litter, oil and other automobile fluids, soil erosion and household chemicals. Some of these pollutants flow into storm drains unintentionally, but many items are carelessly thrown directly into storm drains. The Clean Water Act prohibits disposal of wastes and pollutants into creeks, bays, lakes and oceans.

These pollutants have harmful effects on recreational areas, waterways and wildlife. Some of San Diego's most popular beaches have been closed because of storm water pollutants. Ultimately, storm water pollution harms all of us because we depend on our waterways for recreation and to support San Diego's tourist industry. By preventing pollution from occurring in our homes, neighborhoods and businesses, we can protect our environment and our families' health and safety.

You and your family play an important role in storm water pollution prevention. This brochure provides you with easy and inexpensive tips to prevent pollutants from entering storm drains in the first place. If everyone makes a few simple changes, we can help protect our San Diego lifestyle and environment. "Think Blue" means preventing pollution before it reaches our waterways.

Caltrans

Port of San Diego
www.portofsandiego.org

THINK BLUE
"Protecting our beaches, bays, and waterways"
www.Thinkbluesd.org

For more storm water pollution prevention information or a referral to your local hazardous waste collection program call:
1-888-THINK BLUE or *1-888-844-6525*
In the City of San Diego call: **619-533-3793**

ENVIRONMENTAL HEALTH

COUNTY OF SAN DIEGO WEB SITE

RESIDENTIAL BEST MANAGEMENT PRACTICES

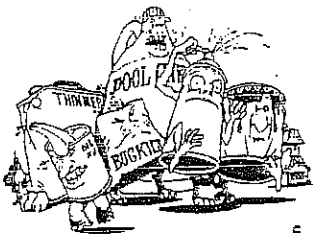
STORMWATER PROGRAM

Is Stormwater from my home polluted?

Several activities that you do at your home have the potential to pollute runoff. Potential pollutants from homes include oil, grease and other petroleum hydrocarbons, heavy metals, litter and debris, animal wastes, solvents, paint and masonry wastes, detergents and other cleaning solutions, and pesticides and fertilizers.

How you manage your home impacts the ocean, even if you live several miles from the beach. Everything that exits your property will eventually run into the ocean. The sources of residential pollutants include household toxics, litter and debris, and runoff from car washing, pool and spa care, lawn maintenance and on-site domestic sewage treatment systems..

Household Toxics

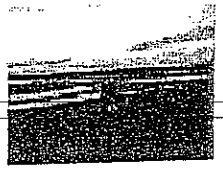


It is very important to properly manage and dispose of household toxics to keep your family safe and to prevent pollutants to runoff. Did you know that oil and grease from automotive maintenance; paint, masonry and cleaning wastes from home repairs and maintenance; pesticides and fertilizers from garden care are all considered household toxics? Oil and grease wastes from leaking car engines and maintenance and repair activities may contain a wide variety of toxic hydrocarbon compounds and metals at varying concentrations, and that exposure may be toxic to aquatic plants and organisms. Other wastes may be poured into storm drains or pollute runoff from maintenance activities conducted by homeowners, including paint and masonry wastes, solvents, detergents from car wash activities, residues from carpet cleaning and pool and spa care. Call the Household Toxics Hotline, (800) 246-1233, for free disposal options available in your area.

Pesticides and Fertilizers

Improper disposal of household toxics into stormwater can endanger aquatic habitat. For example, using excessive amounts of pesticides and fertilizers during landscape maintenance can contribute nutrients, such as nitrogen and phosphorus, and toxic organic substances, such as organophosphates and carbamates, into stormwater. Toxic materials can damage aquatic life and nutrients can result in excessive algae growth in waterways, leading to cloudiness and a reduced level of dissolved oxygen available to aquatic life. And unionized ammonia (nitrogen form) can kill fish.

Litter and Debris



It is also important to properly disposal of litter and debris, including cigarette butts and green waste (leaves and grass clippings from landscape maintenance activities). Decaying organic matter reduces the amount of dissolved oxygen available to aquatic life. Litter and debris can plug up storm drains and reduce the aesthetic quality of the receiving waters

Human pathogens

Human pathogens (bacteria, parasites and viruses) can also pollute run off! Common sources of human pathogens are improperly managed pet wastes and on-site domestic sewage treatment systems. High levels of coliform bacteria in stormwater, which are used as an indicator of fecal contamination and the potential presence of pathogens, may eventually contaminate waterways and lead to beach closures. Decomposition of pet wastes discharged to receiving waters also demand a high level of oxygen, which reduces the amount of dissolved oxygen available to aquatic life.

You can help control runoff pollution by doing the following:

- Do not dispose of liquids or other materials to the storm drain system
- Report illegal dumping of any substance (liquids, trash, household toxics) to the County's toll free, 24-hour hotline 1-888-846-0800
- Utilize the County Household Toxics Program at (800) 246-1233, for disposal of household toxics
- Keep lawn clippings and other landscaping waste out of gutters and streets by placing it with trash for collection or by composting it
- Clean up and properly dispose of pet waste. It is best to flush pet waste. Alternatives to flushing are placing into trash or burying it in your yard (at least 3-ft deep).
- Observe parking restriction for street sweeping.
- Wash automobiles at car washes or on pervious surfaces (lawns) to keep wash water out of the storm drain system.
- Avoid excessive or improper use or disposal of fertilizers, pesticides, herbicides, fungicides, cleaning solutions, and automotive and paint products.
- Use biodegradable, non-toxic, and less toxic alternative products to the extent possible.
- Cover garbage containers and keep them in good repair.
- Sweep sidewalks instead of hosing down.
- Water lawn properly to reduce runoff.

For more information, please call the County Stormwater hotline
(619) 338-2048 or toll-free (888) 846-0800

Automotive Fluids

When it rains or when water flows out of yards or over pavement, it flows directly into storm drains. Many people mistakenly believe this water gets "cleaned" before reaching waterways. The sewer system and the storm water conveyance systems (drains, inlets, and catch basins) are separate; they are not connected. Sewer water gets treated, but everything that washes into the storm water conveyance system goes untreated directly into our rivers, creeks, bays and ocean. This causes beach closures and postings due to contamination. Releasing pollutants into the storm water collection system is a violation of the City Municipal Code, (43.0301). Whether you are at home, work, or play there are ways that residents and businesses alike can "Think Blue" and prevent pollutants from reaching our waterways.

Most of us don't think of our car as a source of beach pollution-- but it is.
The reality is vehicles are a necessity today, and we don't have a lot of choice about that. However, we can be more environmentally responsible and choose the method(s) of caring for and repairing our vehicles in a more ocean friendly way.

Many automotive fluids – **Motor Oil, Anti-Freeze, Transmission Fluids, De-Greasers, Solvents** and the like are hazardous wastes. They are **hazardous** to you and me **and toxic to our environment. No one wants to swim in them.** So, make sure to prevent them from entering our storm water conveyance system.

Automotive Maintenance and Repair: When making repairs or performing minor maintenance on your vehicle, make sure you have protected the sidewalk, curb, street and gutter from repair fluids before beginning work. Identify the nearest storm drain and take steps to protect it from the fluids.

When changing fluids, collect the substance and other automotive materials in seal able containers. Mark the containers. Never mix different substances in one container. Store the containers in a secure location out of reach of children, animals and out of contact with water.

Where to Take the Pollutants:
Motor oil, Oil filters, anti-freeze and non-leaking auto batteries are accepted at the City of San Diego **Used Oil and Filters Collection Events. Call (619) 235-2105** for event information.

For other automotive fluids such as transmission and brake fluids, de-greasers, solvents and the like, call the City's **Household Hazardous Materials Program (619) 235-2111**, to make an appointment to drop-off the pollutants.

Leaking Vehicles: If your vehicle is leaking fluids, please make repairs as soon as possible. A short-term, immediate solution is to put an oil drip pan with absorbent materials under your vehicle wherever it is parked (work, home and other destinations). Until the repair is made, you must capture the leak and prevent fluids from reaching the street or gutter where it can be carried into the storm drain conveyance system and into our waterways and beaches.

Other Fact sheets that may pertain to your activities: *Cleaning Impervious Surfaces (High Pressure Washing); Be A Clean Water Leader: Control, Contain & Capture; Spills; and Car Washing.*

Adopt these behaviors and help Clean up our beaches and bays. Think Blue, San Diego.
For more information, call (619) 235-1000, or log on to: www.thinkbluesd.org (03/05/02)

Car Washing

When it rains or when water flows out of yards or over pavement, it flows directly into storm drains. Many people mistakenly believe this water gets "cleaned" before reaching waterways. The sewer system and the storm water conveyance systems (drains, inlets, and catch basins) are separate; they are not connected. Sewer water gets treated, but everything that washes into the storm water conveyance system goes untreated directly into our rivers, creeks, bays and ocean. This causes beach closures and postings due to contamination. Releasing pollutants into the storm water collection system is a violation of the City Municipal Code, (43.0301). Whether you are at home, work, or play, there are ways that residents and businesses alike can "Think Blue" and prevent pollutants from reaching our waterways.

Most of us don't think of our car as a source of beach pollution-- but it is. The reality is vehicles are a necessity today, and we don't have a lot of choice about that. However, we can be more environmentally responsible and choose the method(s) of caring for and washing our vehicles in an ocean friendly way. Car washing is a pollution problem because many metals and automotive fluids are washed off with the soapy water, travel down the gutter collecting more street pollutants, then enter our storm water conveyance system and spill into our waterways and bays.

Residential/Non-Commercial Vehicles: The Municipal Code allows for the washing of residential vehicles for non-commercial purposes. While washing of your vehicle is allowed, washing-off pollutants from your vehicle such as paint, oils, sediment, debris and such like pollutant(s) is illegal. This is why we encourage that you wash your personal vehicle without creating runoff. When washing is done at home, pollution can be minimized by washing the vehicle on the lawn or over a landscaped area to absorb the liquid and limit runoff from your property. Or, limit runoff by using a bucket and rag to wash your car and a control nozzle on your hose to rinse the car. By actively reducing the amount of water used you are not only protecting our ocean, but helping to conserve water and reducing your water bill.

Charity Washes: may be conducted as long as they are staged in a manner which avoids or minimizes the discharge of pollutants- soap, sediment, water that may be contaminated from automotive fluids and residues. Start by locating all storm drain inlets on, near or downstream of the wash site and sweeping up all sediment and debris in the area prior to washing the vehicles. On the day of the event, place sandbags or other blocking devices in front of the inlets to prevent wash water from entering the storm drain conveyance system. Any remaining standing wash water is to be swept or wet-vacuumed into a landscaped area or into the sanitary sewer system. We recommend the site and inlets be swept at the end of the wash event.

Illegal Washing Activities: Car dealerships, auto detailers, rental agencies and other automotive related businesses that wash vehicles for commercial purposes must prevent the dirty water from entering the storm water conveyance system. All washing activity for commercial purposes must control, contain and capture the wash water before it leaves the site and/or enters a storm drain or a conveyance system. Failure to do so is illegal.

Washing of all vehicles (residential and commercial) that carry items or substances that have a potential to discharge the following pollutants: paint, oils, sediment, yard waste, construction debris, chemicals, hazardous wastes and other pollutants—is illegal.

Adopt these behaviors and help Clean up our beaches and bays. Think Blue, San Diego.
For more information, call (619) 235-1000, or log on to: www.thinkbluesd.org (03/05/02)

Impervious Surfaces:
Cleaning Sidewalks, Pavements, Patios, Parking Lots & Driveways

When it rains or when water flows out of yards or over pavement, it flows directly into storm drains. Many people mistakenly believe this water gets "cleaned" before reaching waterways. The sewer system and the storm water conveyance system (drains, inlets and catch basins) are separate; they are not connected. Sewer water gets treated, but everything that washes into the storm drain goes untreated directly into our rivers, creeks, bays and ocean. This causes beach closures and postings due to contamination. Releasing pollutants into the storm water conveyance system is a violation of the City Municipal Code (43.0301).

We all like clean public areas, but High Pressure Washing and Hosing Down of sidewalks not only contributes to ocean pollution, but *wastes* one of our most valuable resources – *Water*. It's not the water that's a problem. It's the pollutants it picks-up off of surfaces that are. In the City of San Diego, **High Pressure Washing** or **Hosing Down** surfaces in the public right-of-way will only be allowed when the following **Storm Water Best Management Practices are used:**

Before beginning to wash impervious surfaces, sweep and pick up the debris or trash in the area being washed, and in the curbside between the activity and downstream storm drain inlet(s). Properly dispose of the debris.

Storm drain inlet(s) must be protected from the water flow and the pollutants it carries. Locate the nearest downstream storm drain inlet before beginning work. Cover the inlet with fabric cloth and weigh it down with gravel bags. The debris caught in the fabric cloth can then be thrown in the trash.

Hosing pavement in a parking lot and letting it leave the site is not allowed. Water used to clean gas stations, automotive repair, driveway, street or any surface where motor vehicles are parked or driven must be recaptured (wet-vacuumed or mopped) and properly disposed of.

Sweep-up and properly dispose of all sediments that accumulate as a result of the activity.

Disinfectants, solvents, and other household chemicals used to aid in the cleaning process must be recaptured (mopped up or wet vacuumed) before hosing down.

Dry clean up methods (vacuum, sweep, and absorbents) are recommended for spills and outdoor cleaning. Where water is needed, use a mop. If hosing down is desired, follow the Best Management Practices listed above.

Dispose of mop water into the sanitary sewer system. That means down the sink drain, not the storm drain.

High pressure washing or hosing of private property must be contained, recaptured and properly disposed. Direct the water into planters, don't allow it to wash into the storm drain inlet.

Other fact Sheets that may pertain to your activities: *Be A Clean Water Leader: Control, Contain & Capture; Spills; Dumpsters, and Restaurants.*

Adopt these behaviors and help Clean up our beaches and bays. Think Blue, San Diego.

For more information, call (619) 235-1000, or log on to: www.thinkbluesd.org (03/05/02)

Do's and Don'ts Around the Home

(taken from an EPA Journal article, November/December 1991,EPA-22K-1005)

by Robert Goo

The importance of education in bringing nonpoint-source pollution under control is a recurring theme in this issue of EPA Journal. The reason for this is pragmatic: What you don't know can hurt the environment. When rain falls or snow melts, the seemingly negligible amounts of chemicals and other pollutants around your home and premises get picked up and carried via storm drains to surface waters. The ramifications include polluted drinking water, beach closings, and endangered wildlife.

So what can you do to help protect surface and ground waters from so-called nonpoint-source pollution? You can start at home. Begin by taking a close look at practices around your house that might be contributing to polluted runoff: You may need to make some changes. The following are some specific tips to act on—dos and don'ts, organized by categories, to help you become part of the solution rather than part of the problem of nonpoint-source pollution.

Household Chemicals

- Be aware that many chemicals commonly used around the home are toxic. Select less toxic alternatives. Use non-toxic substitutes wherever possible.
- Buy chemicals only in the amount you expect to use, and apply them only as directed. More is not better.
- Take unwanted household chemicals to hazardous waste collection centers; do not pour them down the drain. Pouring chemicals down the drain may disrupt your septic system or else contaminate treatment plant sludge.
- Never pour unwanted chemicals on the ground. Soil cannot purify most chemicals, and they may eventually contaminate runoff.
- Use low-phosphate or phosphate-free detergents.
- Use water-based products whenever possible.
- Leftover household pesticide? Do not indiscriminately spray pesticides, either indoors or outdoors, where a pest problem has not been identified. Dispose of excess pesticides at hazardous waste

collection centers.

Landscaping and gardening

- When landscaping your yard, select plants that have low requirements for water, fertilizers, and pesticides.
- Cultivate plants that discourage pests. Minimize grassed areas which require high maintenance.
- Preserve existing trees, and plant trees and shrubs to help prevent erosion and promote infiltration of water into the soil.
- Use landscaping techniques such as grass swales (low areas in the lawn) or porous walkways to increase infiltration and decrease runoff.
- Other landscaping tips:
    - Install wood decking or bricks or interlocking stones instead of impervious cement walkways.
    - Install gravel trenches along driveways or patios to collect water and allow it to filter into the ground.
    - Restore bare patches in your lawn as soon as possible to avoid erosion.
    - Grade all areas away from your house at a slope of one percent or more.
- Leave lawn clippings on your lawn so that nutrients in the clippings are recycled and less yard waste goes to landfills.
- If you elect to use a professional lawn care service, select a company that employs trained technicians and follows practices designed to minimize the use of fertilizers and pesticides.
- Compost your yard trimmings. Compost is a valuable soil conditioner which gradually releases nutrients to your lawn and garden. (Using compost will also decrease the amount of fertilizer you need to apply.) In addition, compost retains moisture in the soil and thus helps you conserve water.
- Spread mulch on bare ground to help prevent erosion and runoff.
- Test your soil before applying fertilizers. Over- fertilization is a common problem, and the excess can leach into ground water or contaminate rivers or lakes. Also, avoid using fertilizers near surface waters. Use slow- release fertilizers on areas where the potential for water contamination is high, such as sandy soils, steep slopes, compacted soils, and verges of water bodies. Select the proper season to apply fertilizers: Incorrect timing may encourage weeds or stress grasses. Do not apply pesticides or fertilizers before or during rain due to the strong likelihood of runoff.
- Calibrate your applicator before applying pesticides or fertilizers. As equipment ages, annual adjustments may be needed.
- Keep storm gutters and drains clean of leaves and yard trimmings. (Decomposing vegetative matter leaches nutrients and can clog storm systems and result in flooding.)

Septic Systems

Improperly maintained septic systems can contaminate ground water and surface water with nutrients and pathogens. By following the recommendations below, you can help ensure that your system continues to function properly.

- Inspect your septic system annually.
- Pump out your septic system regularly. (Pumping out every three to five years is recommended for a three-bedroom house with a 1,000-gallon tank; smaller tanks should be pumped more often.)
- Do not use septic system additives. There is no scientific evidence that biological and chemical additives aid or accelerate decomposition in septic tanks; some additives may in fact be detrimental to the septic system or contaminate ground water.
- Do not divert stormdrains or basement pumps into septic systems.
- Avoid or reduce the use of your garbage disposal. (Garbage disposals contribute unnecessary solids to your septic system and can also increase the frequency your tank needs to be pumped.)
- Don't use toilets as trash cans! Excess solids may clog your drainfield and necessitate more frequent pumping.

Water Conservation

Homeowners can significantly reduce the volume of wastewater discharged to home septic systems and sewage treatment plants by conserving water. If you have a septic system, by decreasing your water usage, you can help prevent your system from overloading and contaminating ground water and surface water. (Seventy-five percent of drainfield failures are due to hydraulic overloading.)

- Use low-flow faucets, shower heads, reduced-flow toilet flushing equipment, and water saving appliances such as dish and clothes washers. (See table on water savings possible with conservation devices.)
- Repair leaking faucets, toilets, and pumps.
- Use dishwashers and clothes washers only when fully loaded.
- Take short showers instead of baths and avoid letting faucets run unnecessarily.
- Wash your car only when necessary; use a bucket to save water. Alternatively, go to a commercial carwash that uses water efficiently and disposes of runoff properly.
- Do not over-water your lawn or garden. Over-watering may increase leaching of fertilizers to ground water.
- When your lawn or garden needs watering, use slow-watering techniques such as trickle irrigation or soaker hoses. (Such devices reduce runoff and are 20-percent more effective than sprinklers.)

Other Areas Where You Can Make a Difference

- Clean up after your pets. Pet waste contains nutrients and pathogens that can contaminate surface water.
- Drive only when necessary. Driving less reduces the amount of pollution your automobile generates. Automobiles emit tremendous amounts of airborne pollutants, which increase acid rain; they also deposit toxic metals and petroleum byproducts into the environment. Regular tuneups and inspections can help keep automotive waste and byproducts from contaminating runoff. Clean up any spilled automobile fluids.
- Recycle used oil and antifreeze by taking them to service stations and other recycling centers. Never put used oil or other chemicals down stormdrains or in drainage ditches. (One quart of oil can contaminate up to two million gallons of drinking water!)

Community Action

- Participate in clean-up activities in your neighborhood.
- Write or call your elected representatives to inform them about your concerns and encourage legislation to protect water resources.
- Get involved in local planning and zoning decisions and encourage your local officials to develop erosion and sediment control ordinances.
- Promote environmental education. Help educate people in your community about ways in which they can help protect water quality. Get your community groups involved.

For more information on how you can help, contact your

State Water Quality Coordinator

or

Local Cooperative Extension Officer.#

(Goo is an Environmental Protection Specialist in EPA's Nonpoint-Source Control Branch.)

APPENDIX C

ESTIMATED OPERATIONS AND MAINTENANCE COSTS FOR THE PILOT BMP PROJECT TABLE, COUNTY OF SAN DIEGO

APPENDIX H Estimated O & M Costs for BMP Project

Estimated vlaues derived from Caltrans Pilot BMP Study. This spreadsheet will change as additional data becomes available.

						Labor			Equipment				Materials		Total	Comments
						Per. Hrs	Rate	Cost	Type	Days	rate	Cost	Item	Cost	Cost	
BIOFILTER – STRIPS and SWALES																
Preventive Maintenance and Routine Inspections																
ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE-SPECIFIC REQUIREMENTS											
Height of vegetation	Average vegetation height exceeds 12 inches, emergence of trees, or woody vegetation	Visual inspection of vegetation throughout strip/swale	Once during wet season, once during dry season.(depending on growth)	Cut vegetation to an average height of 6 inches	Remove any trees, or woody vegetation.	10	43.63	436.3	one-ton truck & hydroseeder	2	26.84	53.68	string trimmer, rake, fork, bags, safety equipment	50	539.98	
Assess adequate vegetative cover	Less than 90 percent coverage in strip invert/swale or less than 70 percent on swale side slope	Visual inspection of strip/swale. Prepare a site schematic to record location and distribution of barren or browning spots to be restored. File the schematic for assessment of persistent problems.	Assess quantity needed in May each year late wet season and late dry season.	Reseed/revegetate barren spots by Nov.		8	43.63	349.04	one-ton truck & hydroseeder	1	48.15	48.15	seed	150	547.19	
				Scarify area to be restored, to a depth of 2-inches. Restore side slope coverage with hydroseed mixture.		0	43.63	0	one-ton truck & hydroseeder	0	26.84	0			0	
				If after 2 applications (2 seasons) of reseeding/revegetating and growth is unsuccessful both times, an erosion blanket or equivalent protection will be installed over eroding areas		0	43.63	0	one-ton truck & hydroseeder	0	26.84	0	blanket	0	0	
Inspect for debris accumulation	Debris or litter present	Visual observation	During routine trashing, per District's schedule	Remove litter and debris	None	0	0	0	one-ton truck & hydroseeder	0	0	0			0	
Inspect for accumulated sediment	Sediment at or near vegetation height, channeling of flow, inhibited flow due to change in slope.	Visual observation	Annually	Remove sediment. If flow is channeled, determine cause and take corrective action. If sediment becomes deep enough to change the flow gradient, remove sediment during dry season, characterize and properly dispose of sediment, and revegetate.		16	43.63	698.08	one-ton truck & hydroseeder	1	48.15	48.15	seed, testing and disposal of sediment	300	1046.23	once every three years

APPENDIX H Estimated O & M Costs for BMP Project

Estimated vlaues derived from Caltrans Pilot BMP Study. This spreadsheet will change as additional data becomes available.

						Labor			Equipment				Materials		Total	Comments
						Per. Hrs	Rate	Cost	Type	Days	rate	Cost	Item	Cost	Cost	
				Notify engineer to determine if regrading is necessary. If necessary, regrade to design specification and revegetate swale/strip. If regrading is necessary, the process should start in May. Revegetate strip/swale in Nov. Target completion prior to wet season.	None	2	43.63	87.26				0			87.26	
Inspect for burrows	Burrows, holes, mounds	Visual observation	Annually and after vegetation trimming	Where burrows cause seepage, erosion and leakage, backfill firmly.		0		0	one-ton truck & hydroseeder	0	26.84	0			0	
General Maintenance Inspection	Inlet structures, outlet structures, side slopes or other features damaged, significant erosion,emergence of trees, woody vegetation , fence damage, etc.	Visual observation	Semi-Annually, late wet season and late dry season.	Corrective action prior to wet season. Consult engineer if an immediate solution is not evident.	Remove any trees, or woody vegetation.	16	43.63	698.08	one-ton truck & hydroseeder	2	26.84	53.68			751.76	
TOTAL BIO FILTER AND SWALES						52		2268.76				203.66		500	2972.42	
BIO STRIP WITH SPREADER DITCH					Includes all the above plus the following			0				0			0	
Inspect for standing water	Water accumulation in spreader ditch	Standing water in spreader ditch	Within 72 hours after a storm event 0.75 inches or greater.	De-water the spreader ditch to a depth of less than 0.25 inches. If sediment impedes the de-watering activity, then move or remove that portion of the sediment. Characterize and properly dispose.		3	43.63	130.89	0	0	0	0			130.89	
				De-water the spreader ditch to a depth of less than 0.25" by removing the bypass plug and allowing the water to drain into the infiltration trench. Use care to prevent sediment from discharging into the infiltration trench. Replace the bypass plug once the de-watering has been completed.		6	43.63	261.78	0	0	0	0			261.78	